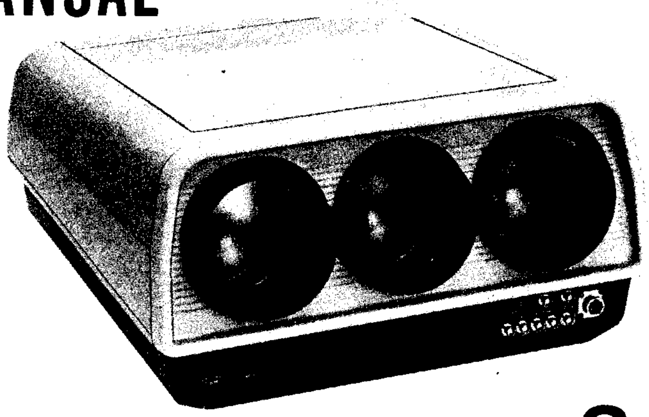
V03233

VPH-1040QM

SERVICE MANUAL

AEP Model

Chassis No. SCC-A65A-A



Super Bright

SPECIFICATIONS

Optical	
Projection system	3 picture tubes, 3 lenses, direct projection system
Picture tube	5.5-inch high-brightness monochrome tubes, with coolant sealed
Projection lens	High-performance hybrid lenses F 1.0/130 mm
Projected picture size	72 - 250 inches measured diagonally Factory-adjusted to 100 inches measured diagonally
Light output	600 lm
General	
Color system	PAL, SECAM, NTSC and NTSC$_{4.43}$ systems, switched automatically
Resolution	900 TV lines (RGB inputs) 550 TV lines (video input)
RGB inputs	Character display capacity: 2000 characters (80 letters × 25 lines) Horizontal frequency: 15.75 kHz Vertical frequency: 50/60 Hz
Test signal	Cross-hair test pattern generator is incorporated.
Speaker	5 × 9 cm (2 × 3½ inches) 1 unit, 3 W

Inputs

LINE

VIDEO IN: BNC connector
Composite video input,
1 Vp-p ± 2 dB, sync negative,
75 ohms terminated

AUDIO IN: phono jack
0.5 Vrms
Impedance: more than
47 k ohms

RGB

R: BNC connector
Red input, 0.7 Vp-p ± 2dB,
75 ohms terminated, positive

G/G SYNC: BNC connector
Green input, 0.7 Vp-p ± 2 dB,
75 ohms terminated, positive
Positive/Green with sync input,
1 Vp-p ± 2 dB, 75 ohms terminated

B: BNC connector
Blue input, 0.7 Vp-p ± 2 dB,
75 ohms terminated, positive

SYNC/HD: BNC connector
Composite sync input,
0.3 - 4 Vp-p,
75 ohms terminated, negative
Horizontal sync input,
0.3 - 4 Vp-p,
75 ohms terminated, nagative

– Continued on next page –

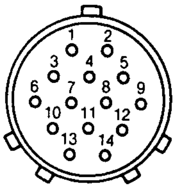
COLOR VIDEO PROJECTOR

SONY®

MICROFILM

MON

	VD: BNC connector Vertical sync input, 0.3 – 4 Vp-p, 75 ohms terminated, nagative AUDIO IN: phono jack 0.5 Vrms impedance: more than 47 k ohms
Output	VIDEO OUT: BNC connector Composite video output, 1 Vp-p ± 2 dB, impedance 75 ohms, selected video output With the remote controller: video signal from the controller Without the remote controller: video signal from the VIDEO IN connector
TO VPR-722 connector	14-pin connector



Pin No.	Signal	Pin No.	Signal
1	Ground	8	Input select
2	+28V ⎓ 60mA	9	Audio (incl. volume control)
3	Hue 1	10	Brightness
4	Hue 2	11	Sharpness
5	Hue 3	12	Color
6	Video	13	Picture
7	Ground (video)	14	Power ON: 12V OFF: 0V

Power requirements	220 - 240 V AC, 50/60 Hz
Power consumption	210 W
Dimensions	Approx. 532 × 288 × 597 mm (w/h/d) (21 × 11 3/8 × 23 5/8 inches) with the brackets pushed down, incl. projecting parts and controls
Weight	Approx. 30 kg (66 lb 2 oz)
Accessories supplied	AC power cord (1) Spacer for 200″ projection (4)

Design and specifications subject to change without notice.

OPTIONAL ACCESSORIES

Remote controller VPR-722
Projector pedestal SU-722
Projector suspension support PSS-722, PSS-10
Screen VPS-100F1 (100″ flat)
VPS-72HG1 (72″ curved)
VPS-100HG1 (100″ curved)
Carrying case VLC-1040
CCQ cables
Shielded cable SMF-506 (D-sub 25-pin ↔ 4 BNC)

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

TABLE OF CONTENTS

Section *Title* *Page*

1. GENERAL

1-1. Location and Function of Controls 4
1-2. Position and Registration Adjustments . . . 6
1-3. Projecting 7
1-4. System Connections 9
1-5. Installation Possibilities 12
1-6. System Installation Procedure 13
1-7. Before Installing 13
1-8. Installation Diagrams 14
1-9. Notes on Installation 20
1-10. Polarity Change 22
1-11. Lens Focus Adjustment 23
1-12. Registration Adjustment 24
1-13. Conversion for 200" (150"–250") Projection 26

2. DISASSEMBLY

2-1. Removal of Lens 28
2-2. Removal of Switching Regulator, QA Board, QB Board and FA Board 28
2-3. Removal of PA Board 29
2-4. Removal of High-Voltage DC Block 29
2-5. Removal of Picture Tube 30

3. CIRCUIT DESCRIPTIONS

3-1. HV Regulation Circuit 31
3-1-1. HV Regulation Section 31
3-1-2. HV Regulation Control Section 32

4. SET-UP ADJUSTMENTS

4-1. Basic Adjustments 33
4-2. Green Focus Adjustment 33
4-3. Red Focus Adjustment 33
4-4. Blue Focus Adjustment 33
4-5. Green Picture Adjustment 34
4-6. RED DY Adjustment 35
4-7. TILT Adjustment 35
4-8. G-R H. Registration Adjustment 36
4-9. G-R TILT Adjustment 36
4-10. BLUE DY Adjustment 36
4-11. G-B V. Registration Adjustment 37
4-12. G-B H. Registration Adjustment 37
4-13. G-B TILT Adjustment 37
4-14. White Balance Adjustment 37

5. SAFETY RELAED ADJUSTMENTS

5-1. PA and PC Board Adjustments 40
6. CIRCUIT ADJUSTMENT 40

7. DIAGRAMS

7-1. Circuit Boards Location 43
7-2. Quick Reference 44
7-3. Block Diagrams 45
7-4. Frame Schematic Diagram 57
7-5. Semiconductors 61
7-6. Schematic Diagrams and Printed Wiring Board 63
7-7. Waveforms 105

8. EXPLODED VIEWS

8-1. Lens 111
8-2. Panel 112
8-3. D Board 113
8-4. Base Assy 114
9. ELECTRICAL PARTS LIST 115

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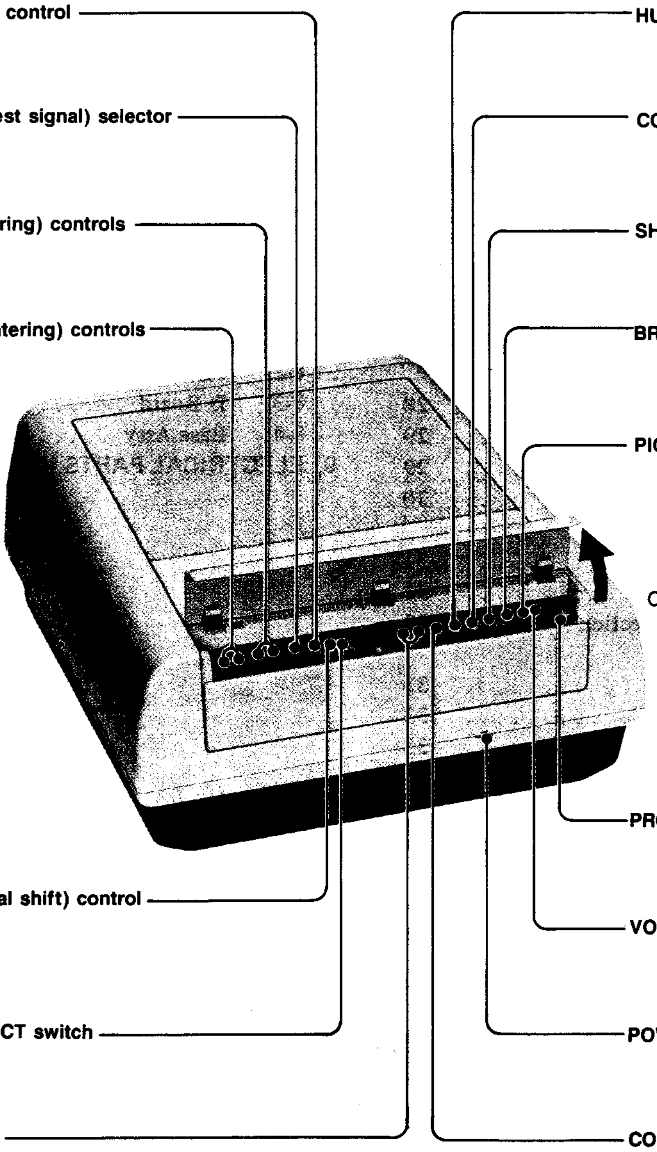
SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS

Control panel



V HOLD (vertical hold) control

NORM/TEST (normal/test signal) selector

V CENT (vertical centering) controls

H CENT (horizontal centering) controls

RGB H SHIFT (horizontal shift) control

RGB BLUE MODE SELECT switch

INPUT SELECT buttons
Press to select the program source to be projected.
LINE: For inputs from the TO VPR-722 connector or the LINE connectors
RGB: For inputs from the RGB connectors

HUE control

COLOR control

SHARPNESS control

BRIGHT (brightness) control

PICTURE control

Open the panel cover.

PROJECTOR switch

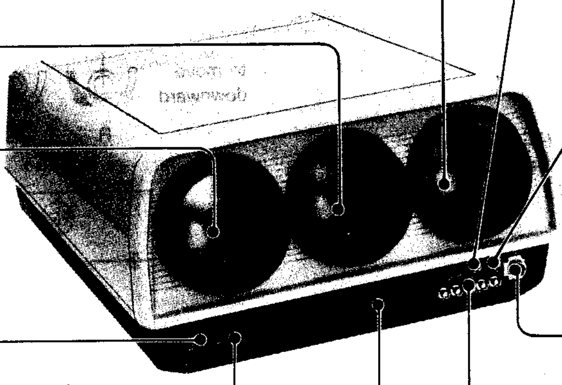
VOLUME control

POWER lamp

COLOR SYSTEM selector
Normally set to AUTO.
Set to SECAM when the color of a picture from SECAM color sources is disturbed.

The control panel is illuminated when the panel cover is open.

Connector panel



Blue lens

Green lens

Red lens

POWER switch
Depress to turn the power on.
When the remote controller is connected, power will be supplied to the controller.

AC IN socket

LINE input connectors
VIDEO IN (BNC), AUDIO IN (phono)

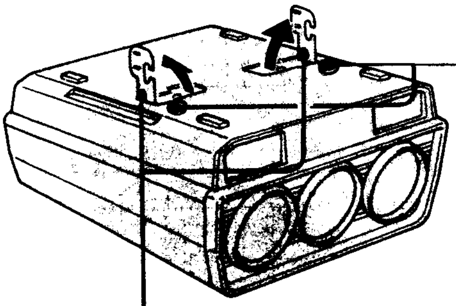
VIDEO OUT connector
(BNC)

TO VPR-722 connector
(14-pin, male)

RGB input connectors
R, G/G SYNC, B, SYNC H/D, VD (BNC),
AUDIO IN (phono)

Speaker

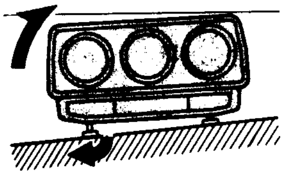
Bottom



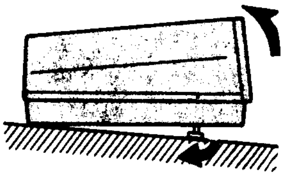
Brackets
For attaching the projector to the PSS-722 suspension support or the SU-722 pedestal.

Adjustable feet
The horizontal balance and angle of the projector can be adjusted with these feet. The feet are factory-adjusted to the shortest length for a flat base.

Turn either foot to obtain horizontal balance.



Turn both feet to adjust the angle.



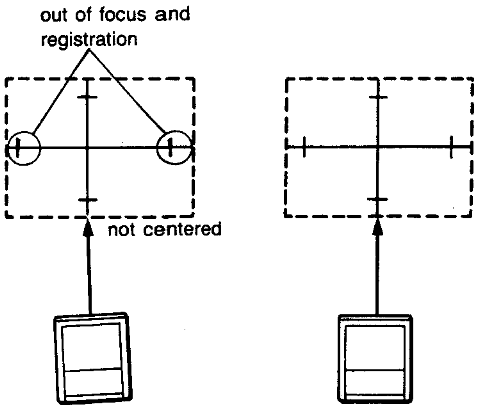
1-2. POSITION AND REGISTRATION ADJUSTMENTS

1 Depress the POWER switch (ON).

2 Depress the PROJECTOR switch (ON).

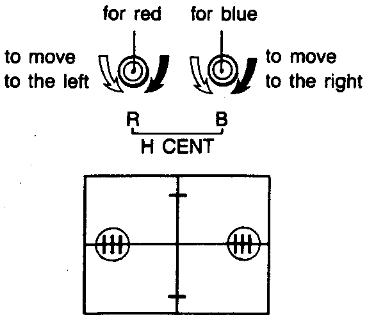
3 Set the NORM/TEST selector to TEST.
The built-in cross-hair test pattern will be displayed.

4 **Check the focus and centering.**
If the test pattern is not centered and focused on the screen, move the projector slightly so that the pattern is displayed clearly.

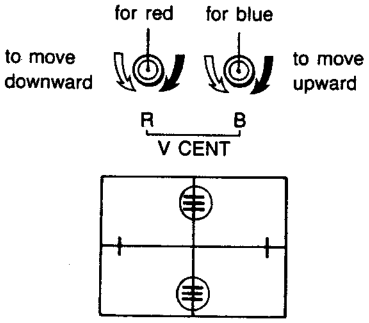

out of focus and registration
not centered

5 **Check the convergence of red, green and blue.**
If the red and blue lines do not converge with the green line, adjust the H CENT and V CENT controls so that the three lines converge and the pattern is seen as white.

To move the red and blue vertical lines

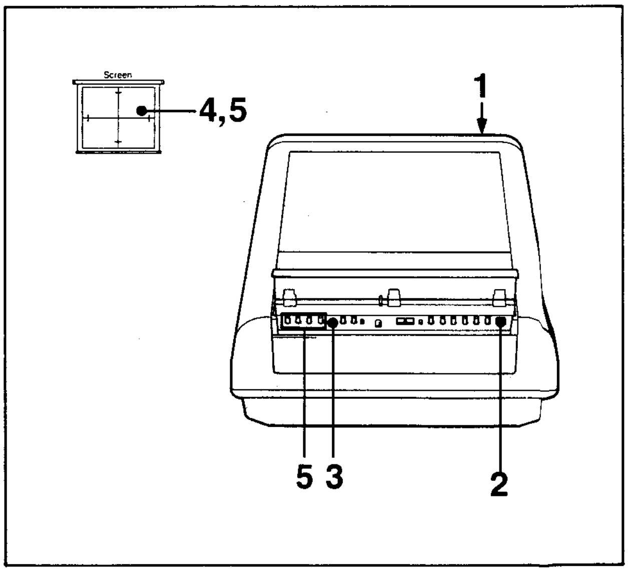

for red
for blue
to move to the left
to move to the right
R
B
H CENT

To move the red and blue horizontal lines

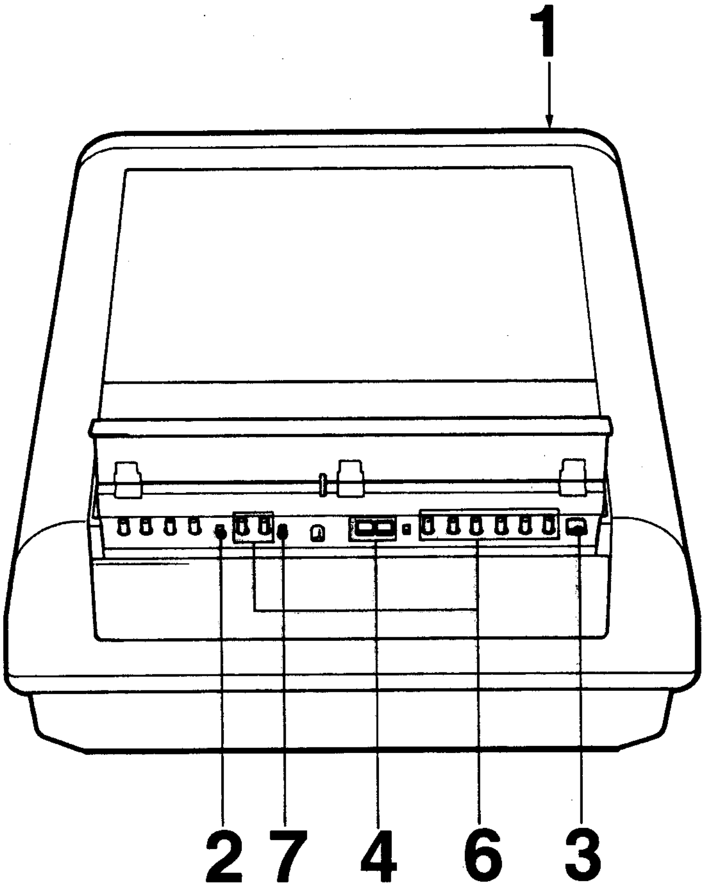

for red
for blue
to move downward
to move upward
R
B
V CENT

6 After the adjustment is complete, set the NORM/TEST selector to NORM.

When the projector is installed on a desk or on the floor using the pedestal, it can be easily moved but it may be necessary to readjust the registration.


Screen
4,5
1
5
3
2

1-3. PROJECTING



OPERATION

1. Depress the POWER switch (ON).
2. Make sure that the NORM/TEST selector is set to NORM.
3. Depress the PROJECTOR switch (ON).
   The green POWER lamp will light.
4. Select the program to be projected by pressing the LINE or RGB INPUT SELECT button.
5. Turn on the connected equipment.
   The picture will be projected on the screen and the sound will be heard from the speaker.
6. Adjust the picture and sound to your preference.
   See below.
7. For RGB programs, select the position of the RGB BLUE MODE SELECT switch.
   See "RGB BLUE MODE SELECT switch".

To turn off the projector
Press the PROJECTOR switch again (OFF).

To turn off the power
Press the POWER switch (OFF).

RGB BLUE MODE SELECT switch
This switch is effective only for RGB inputs. Select the position in which the display is easiest to view.

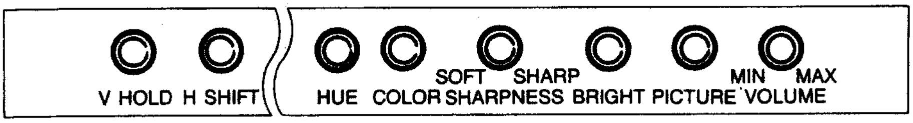
NORMAL	Normally set to this position.
BB	To change the black background to blue.
CB	To lighten the blue part of the display.

OPERATION USING THE REMOTE CONTROLLER

When the optional Sony VPR-722 remote controller is connected to the TO VPR-722 connector, keep the POWER switch on the projector at ON and perfom steps 3, 4, 6 and 7 above on the controller. The controls on the projector do not function.

Note
V HOLD and H SHIFT adjustments cannot be operated with the controller.

PICTURE AND SOUND ADJUSTMENTS



VOLUME	Turn toward MAX to increase volume, and toward MIN to decrease it.
PICTURE	Turn clockwise to increase picture contrast, color intensity and brightness in the proper ratio, and counterclockwise to decrease them.
BRIGHT	Turn clockwise for more brightness, and counterclockwise for less.
SHARPNESS	Turn clockwise for sharp picture, and counterclockwise for soft.
COLOR	Turn clockwise for more color intensity, and counterclockwise for less.

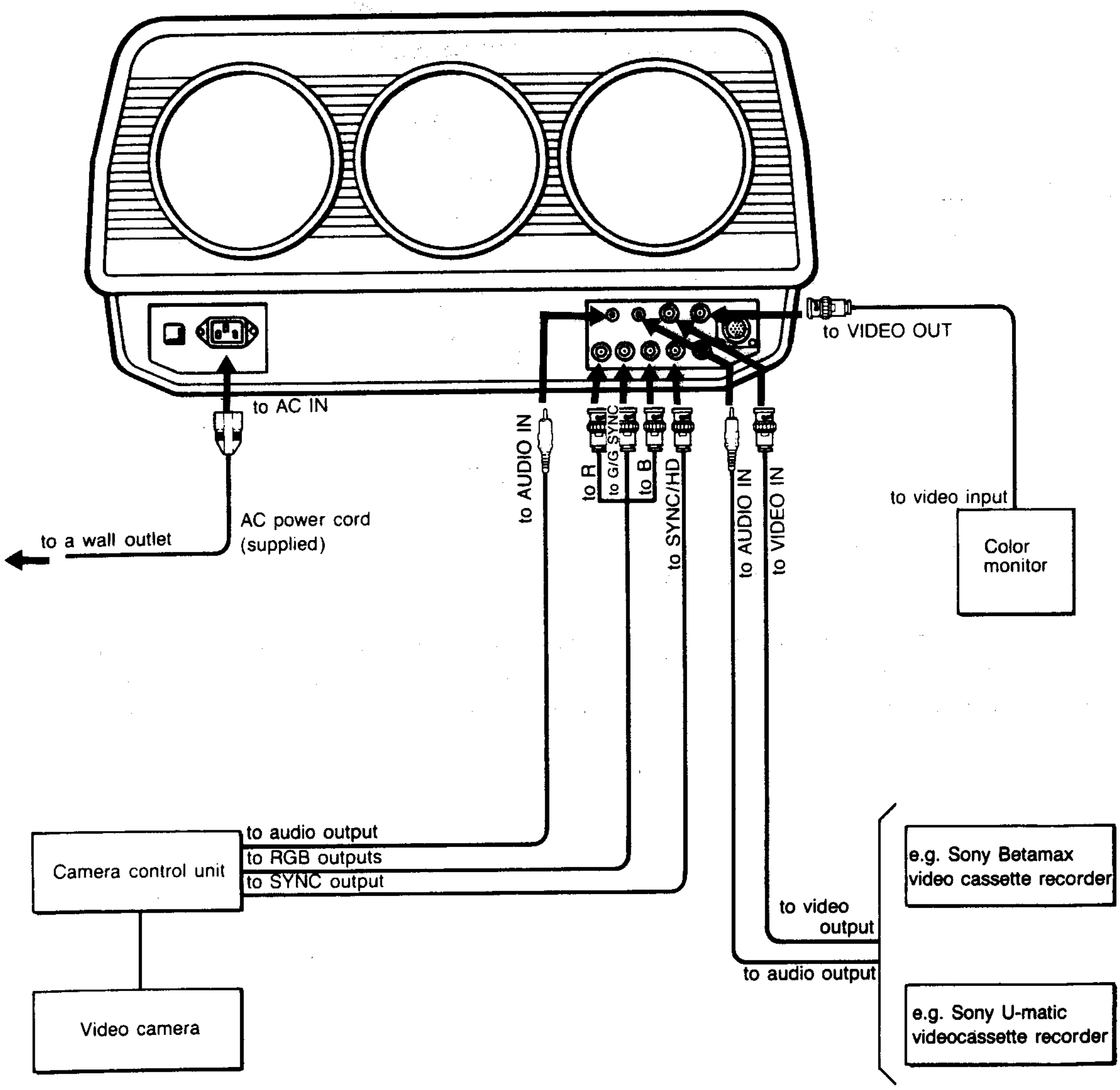
HUE	(Effective only for a program of the NTSC or NTSC$_{4.43}$ color system) Turn clockwise to make the skin tones greenish, and counterclockwise to make them purplish.
V HOLD	If the picture rolls vertically, turn until the picture stabilizes.
RGB H SHIFT	(Effective only for RGB inputs) Turn to adjust the horizontal position of the picture.

1-4. SYSTEM CONNECTIONS

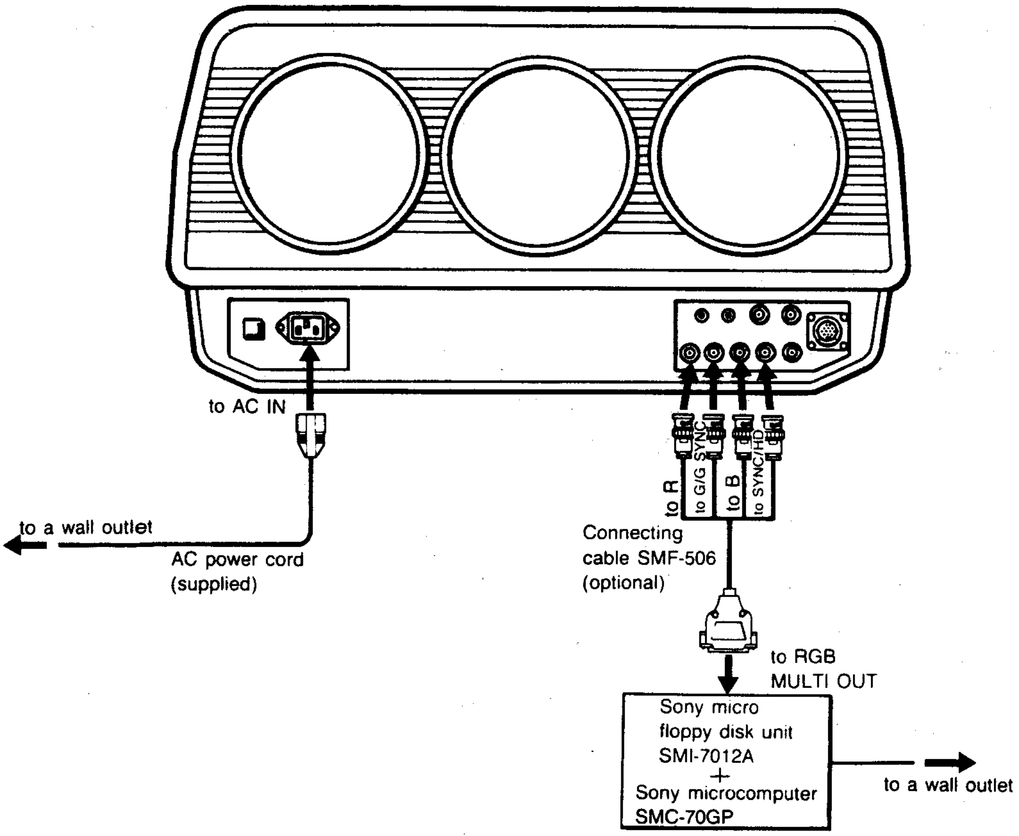
Connecting notes

- First make sure that the power to each piece of equipment is turned off.
- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- To disconnect the cable, pull it out by grasping the plug. Never pull the cable itself.
- Use suitable connecting cables according to the equipment to be connected.
- For connection to the VIDEO IN and TO VPR-722 connectors, the connecting cable may be extended to max. 50 m (164 feet ½ inch). If the connecting cable is longer than 50 m, picture quality may be impaired somewhat.
- Read the instruction manual of the equipment to be connected.

WITHOUT USING THE REMOTE CONTROLLER


to AC IN
to a wall outlet
AC power cord
(supplied)
to AUDIO IN
to R
to G/G SYNC
to B
to SYNC/HD
to AUDIO IN
to VIDEO IN
to VIDEO OUT
to video input
Color
monitor
to audio output
to RGB outputs
to SYNC output
Camera control unit
Video camera
to video
output
to audio output
e.g. Sony Betamax
video cassette recorder
e.g. Sony U-matic
videocassette recorder

CONNECTING A MICROCOMPUTER


to AC IN
to a wall outlet
AC power cord
(supplied)
to R
to G/G SYNC
to B
to SYNC/HD
Connecting
cable SMF-506
(optional)
to RGB
MULTI OUT
Sony micro
floppy disk unit
SMI-7012A
+
Sony microcomputer
SMC-70GP
to a wall outlet

Sync signal connection for RGB inputs

The connection differs according to the sync signal to be used.

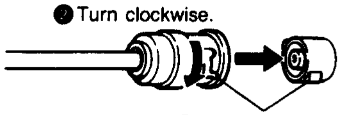
When a sync signal is input together with the green signal	Connection to the SYNC/HD and VD connectors is not necessary.
When using an external composite sync signal	Connect it to the SYNC/HD connector. (as illustrated above)
When using horizontal and vertical sync signals	Connect them to the SYNC/HD and VD connectors respectively.

- If your microcomputer is equipped with a composite video output, connect it to the VIDEO IN (LINE) connector on the projector.
- If necessary, connect an audio source to the RGB AUDIO IN jack.

Note

Do not leave a still picture from a microcomputer or laser disc player projected for more than one hour.

BNC connector

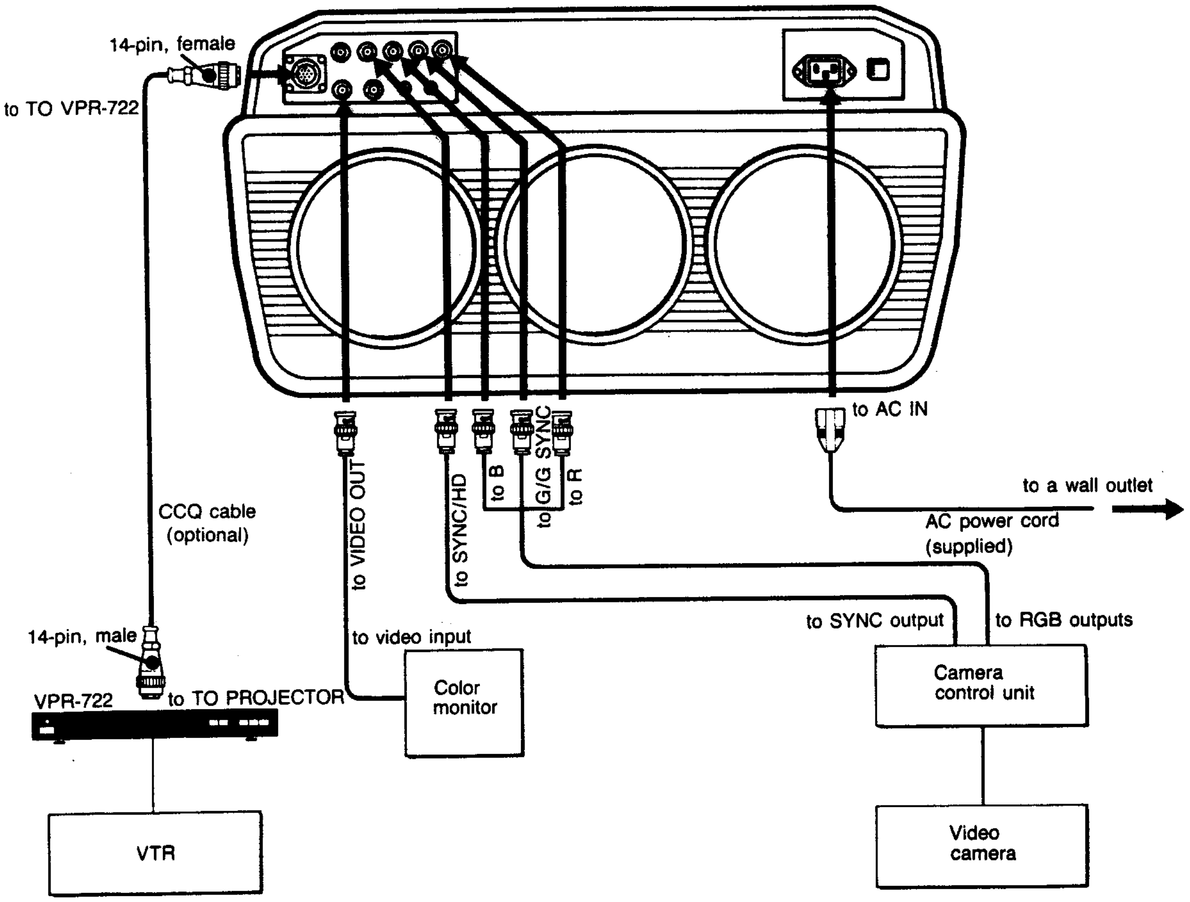

❷ Turn clockwise.
❶ Align and insert.

USING THE REMOTE CONTROLLER

Use the optional VPR-722 remote controller when the projector is installed on the ceiling or when you want to operate the projector at a distance from your seat.

Remote controllable operations

- Power on/off
- Program selection (LINE or RGB)
- Picture and sound adjustments
- RGB blue mode selection

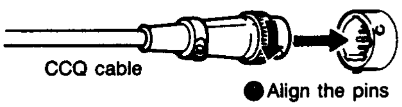

14-pin, female
to TO VPR-722
CCQ cable
(optional)
14-pin, male
VPR-722
to TO PROJECTOR
VTR
to VIDEO OUT
to video input
Color monitor
to SYNC/HD
to B
to G/G SYNC
to R
to AC IN
to a wall outlet
AC power cord
(supplied)
to SYNC output
to RGB outputs
Camera control unit
Video camera

Notes

When the remote controller is connected to the TO VPR-722 connector:

- the VIDEO IN/AUDIO IN (LINE) connectors are disconnected automatically.
- the PROJECTOR switch, INPUT SELECT buttons, RGB BLUE MODE SELECT switch and the controls for picture and sound adjustments (except H SHIFT and V HOLD) do not function.

14-pin connector


● Turn clockwise.

● Align the pins and insert.

1-5. INSTALLATION POSSIBILITIES

For 100" projection				
Installation place	Desk	Floor	Ceiling	
Screen to be used	VPS-100F1 flat screen	VPS-100HG1 curved screen	VPS-100F1 flat screen	VPS-100HG1 curved screen
Accessory for installation	—	SU-722 pedestal	PSS-722 suspension support	
Type of installation	1	2	3	4

For 72" projection				
Installation place	Desk	Floor	Ceiling	
Screen to be used	VPS-100F1 flat screen	VPS-72HG1 curved screen	VPS-100F1 flat screen	VPS-72HG1 curved screen
Accessory for installation	—	SU-722 pedestal	PSS-722 suspension support	
Type of installation	5	6	7	8

For 100" – 250" projection*		
Installation place	Floor	Ceiling
Screen to be used	100″- 250″ flat screen	
Accessory for installation	—	PSS-722 suspension support
Type of installation	9	10

* For 150″- 250″ projection, internal conversion is necessary. First perform conversion, referring to pages 26 and 27.

Types of installation:
The same numbers are used for the system installation procedure and the installation diagrams in this manual.

1-6. SYSTEM INSTALLATION PROCEDURE

		Type of installation									
		1	2	3	4	5	6	7	8	9	10
1	Install the screen. (See pages 14 to 19 and screen's installation manual.)	1	1	1	1	1	1	1	1	1	1
2	Place the projector on the desk. (See pages 14, 16 and 18.)	2				2				2	
3	Place the projector on the SU-722 pedestal. (See pages 14 and 16 and SU-722's installation manual.)		3				3				
4	Change the polarity. (See page 22.)			4	4			4	4		4
5	Install the PSS-722 suspension support to the ceiling and attach the projector to the PSS-722. (See pages 15, 17 and 18 and PSS-722's installation manual.)			5	5			5	5		5
6	Adjust the lens focus. (See page 23.)		6		6	6	6	6	6	6	6
7	Adjust the registration. (See page 24.)		7		7	7	7	7	7	7	7
8	Make the connections. (See the projector's instruction manual.)	8	8	8	8	8	8	8	8	8	8

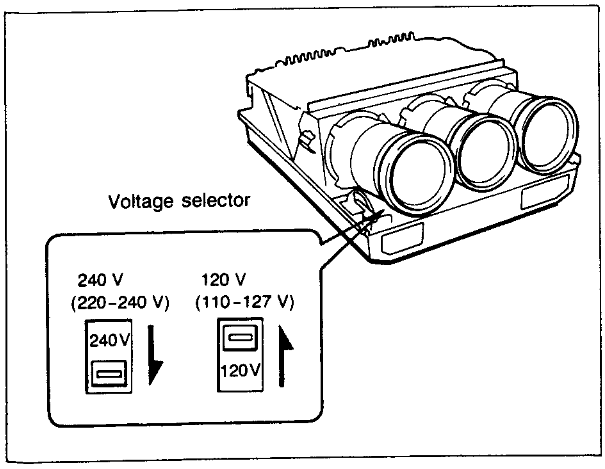
1-7. BEFORE INSTALLING

OPERATING VOLTAGE SELECTION

The operating voltage of this unit is preset at the factory to 240 V (220 - 240 V) AC. The voltage can be set to 120 V (110 - 127 V) AC.

If adaptation to your local power line voltage is necessary, **before connecting the unit to the AC outlet**, open the cabinet and set the voltage selector to the appropriate position using a screwdriver. Make a note of your voltage setting.

For removing the cabinet, see page 21.



ILLUMINATION

To obtain a clear picture, the screen should not be exposed to illumination or sunlight directly from the front.

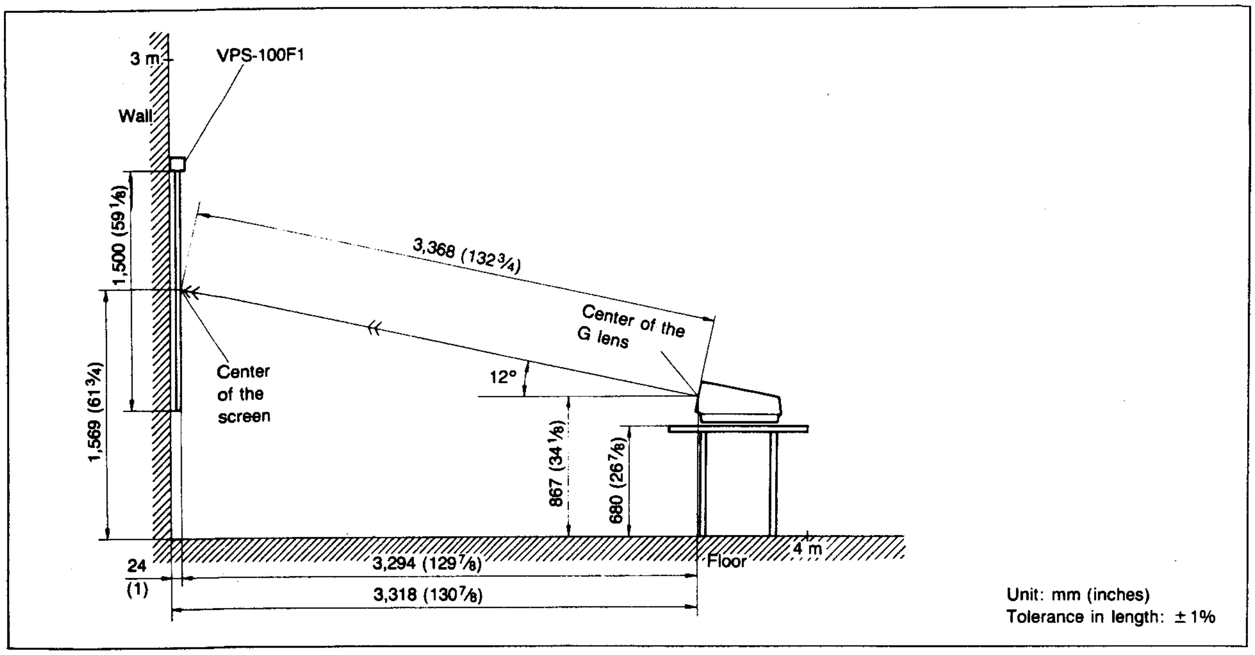
- Ceiling mounted spot lighting is recommended. Use a construction over lightscattering illumination such as fluorescent lamps.
- Cover the windows that face the screen with opaque draperies.
- It is desirable to install the projector in a room whose floor and walls are not of light-reflecting material. If the floor and walls are of reflecting material, it would be desirable to change to a dark carpet and wall paper.

1-8. INSTALLATION DIAGRAMS

The following installation diagrams indicate the relative position of the projector, screen and ceiling/floor. The projector is preadjusted at the factory for the indicated throwing distance. If the throwing distance should be changed more than ±1% of the indicated value, lens focus and registration readjustments may be required for optimum projection.

Type 1

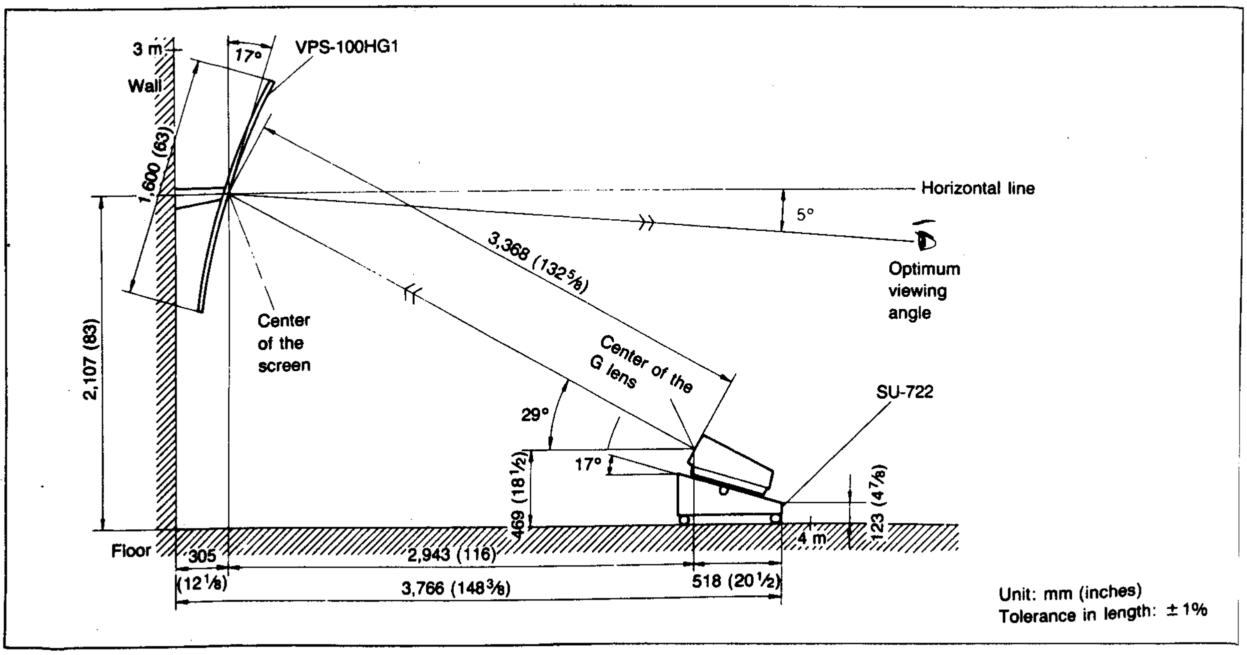
100" projection
Desk top
Flat screen


3 m
VPS-100F1
Wall
1,500 (59⅛)
3,368 (132¾)
Center of the G lens
Center of the screen
12°
1,569 (61¾)
867 (34⅛)
680 (26⅞)
4 m
Floor
24
(1)
3,294 (129⅞)
3,318 (130⅞)

Unit: mm (inches)
Tolerance in length: ±1%

Type 2

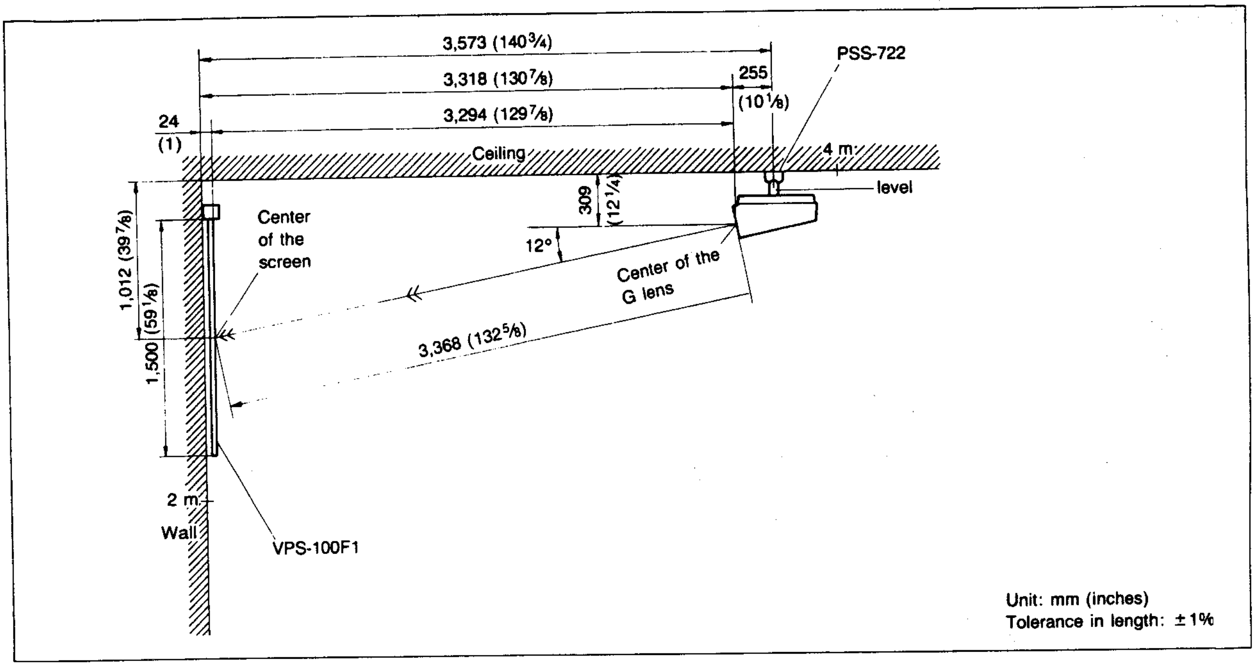
100" projection
Floor
Curved screen


3 m
17°
VPS-100HG1
Wall
1,600 (63)
Horizontal line
5°
Optimum viewing angle
3,368 (132⅝)
Center of the screen
2,107 (83)
Center of the G lens
29°
SU-722
469 (18½)
17°
123 (4⅞)
4 m
Floor
305
(12⅛)
2,943 (116)
3,766 (148⅜)
518 (20½)

Unit: mm (inches)
Tolerance in length: ±1%

Type 3

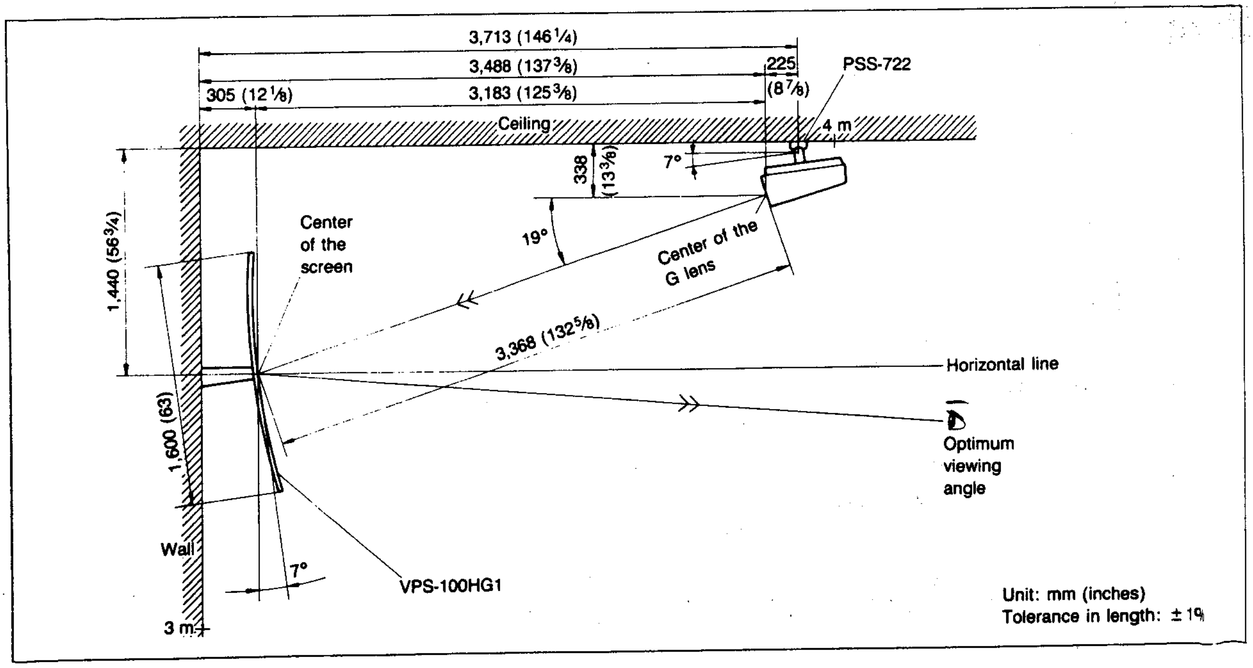
100″ projection
Ceiling
Flat screen


3,573 (140¾)
3,318 (130⅞)
3,294 (129⅞)
255
(10⅛)
24
(1)
PSS-722
Ceiling
4 m
level
309
(12¼)
Center
of the
screen
12°
Center of the
G lens
3,368 (132⅝)
1,012 (39⅞)
1,500
(59⅛)
2 m
Wall
VPS-100F1

Unit: mm (inches)
Tolerance in length: ±1%

Type 4

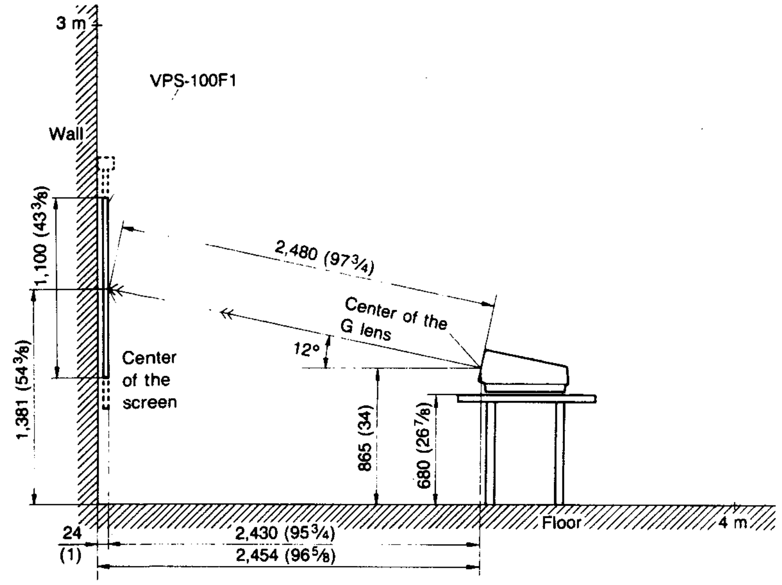
100″ projection
Ceiling
Curved screen


3,713 (146¼)
3,488 (137⅜)
305 (12⅛)
3,183 (125⅜)
225
(8⅞)
PSS-722
Ceiling
4 m
338
(13⅜)
7°
Center
of the
screen
19°
Center of the
G lens
3,368 (132⅝)
1,440 (56¾)
Horizontal line
1,600 (63)
Optimum
viewing
angle
Wall
7°
VPS-100HG1
3 m

Unit: mm (inches)
Tolerance in length: ±1%

Type 5

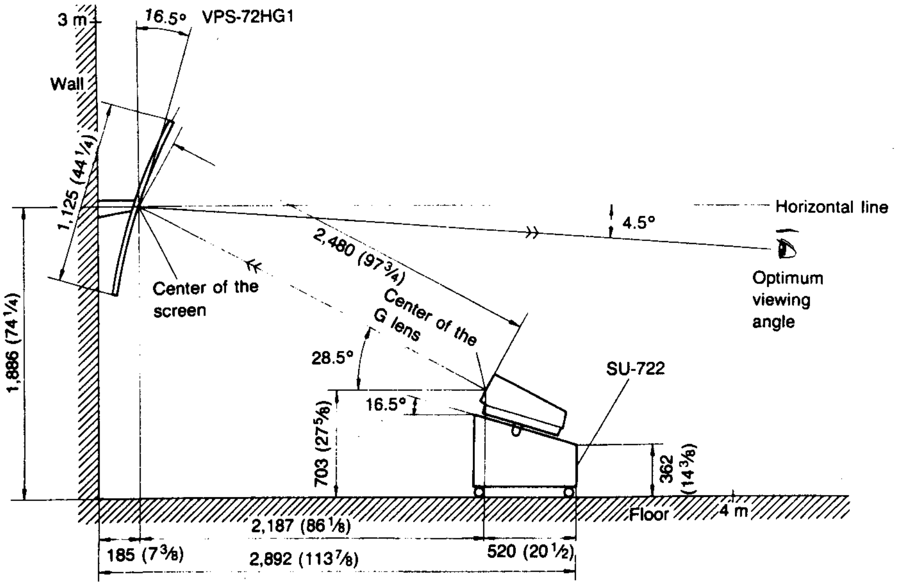
72″ projection
Desk top
Flat screen


3 m
VPS-100F1
Wall
1,100 (43⅜)
2,480 (97¾)
Center of the G lens
12°
Center of the screen
1,381 (54⅜)
865 (34)
680 (26⅞)
Floor
4 m
24 (1)
2,430 (95¾)
2,454 (96⅝)

Unit: mm (inches)
Tolerance in length: ±1%

Type 6

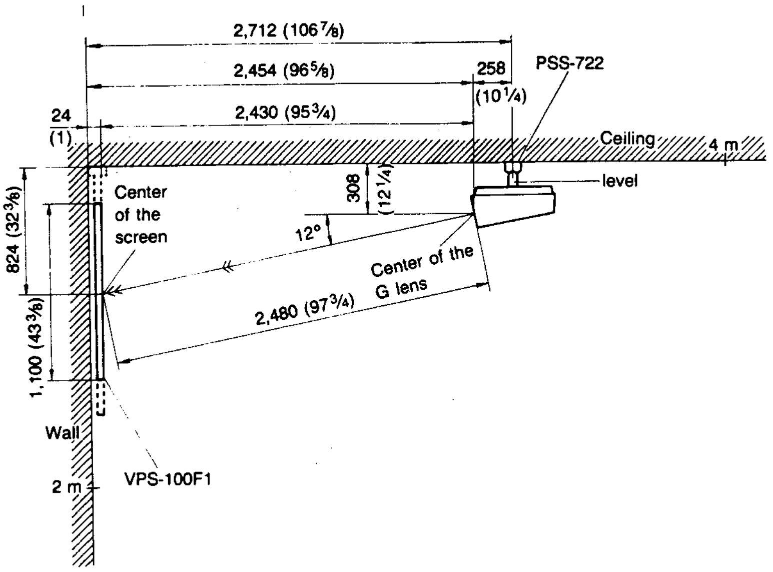
72″ projection
Floor
Curved screen


3 m
16.5°
VPS-72HG1
Wall
1,125 (44¼)
4.5°
Horizontal line
Optimum viewing angle
Center of the screen
2,480 (97¾)
Center of the G lens
1,886 (74¼)
28.5°
SU-722
16.5°
703 (27⅝)
362 (14⅜)
Floor
4 m
2,187 (86⅛)
185 (7⅜)
2,892 (113⅞)
520 (20½)

Unit: mm (inches)
Tolerance in length: ±1%

Type 7

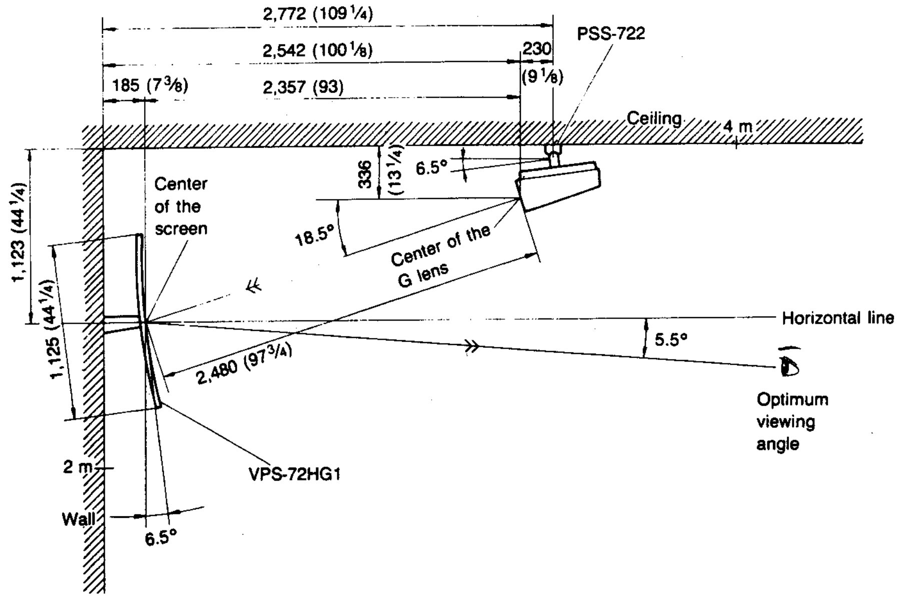
72″ projection
Ceiling
Flat screen


2,712 (106⅞)
2,454 (96⅝)
258
(10¼)
PSS-722
24
(1)
2,430 (95¾)
Ceiling
4 m
level
308
(12¼)
Center
of the
screen
12°
Center of the
G lens
2,480 (97¾)
824 (32⅜)
1,100 (43⅜)
Wall
VPS-100F1
2 m

Unit: mm (inches)
Tolerance in length: ±1%

Type 8

72″ projection
Ceiling
Curved screen


2,772 (109¼)
2,542 (100⅛)
230
(9⅛)
PSS-722
185 (7⅜)
2,357 (93)
Ceiling
4 m
336
(13¼)
6.5°
Center
of the
screen
18.5°
Center of the
G lens
1,123 (44¼)
1,125 (44¼)
Horizontal line
5.5°
2,480 (97¾)
Optimum
viewing
angle
VPS-72HG1
2 m
Wall
6.5°

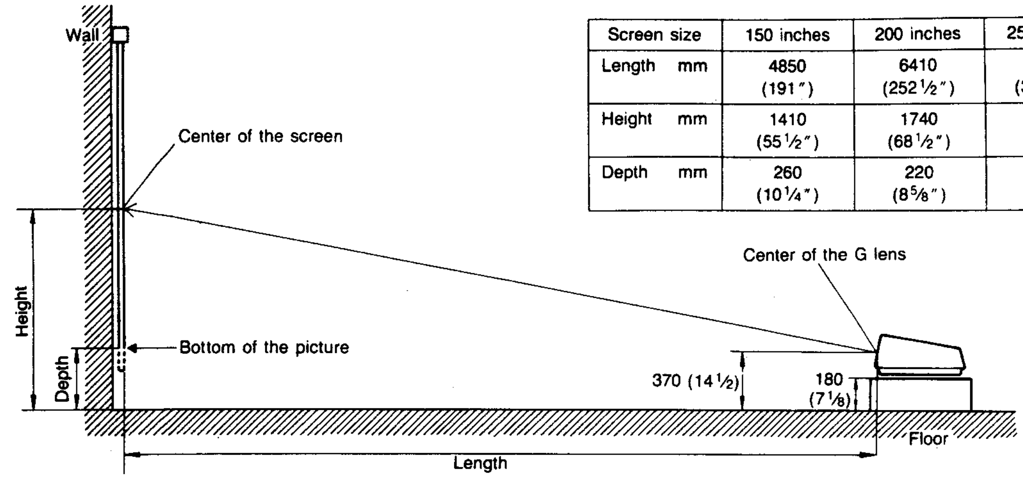
Unit: mm (inches)
Tolerance in length: ±1%

Type 9

100″ - 250″ projection
Floor
Flat screen

Decide the length, height, and depth according to the screen size to be used.

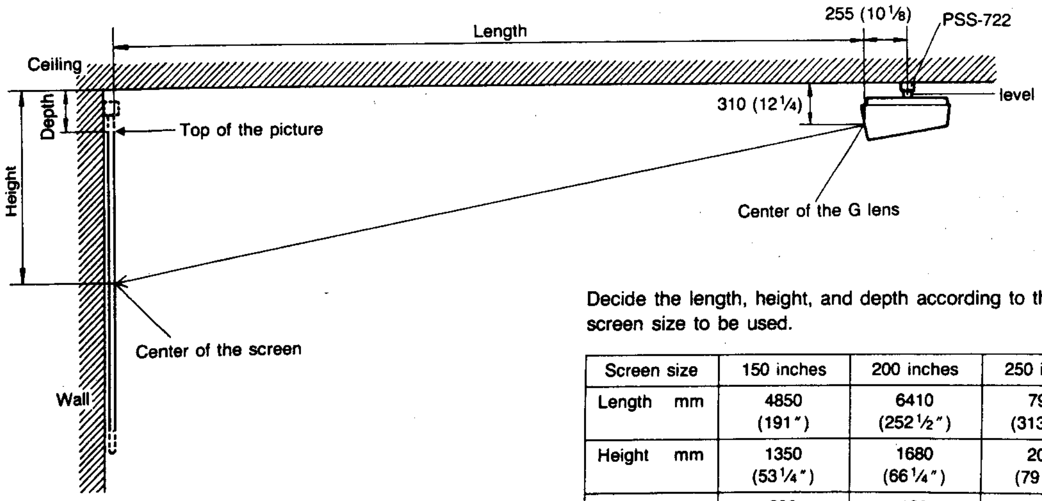
Screen size	150 inches	200 inches	250 inches
Length mm	4850 (191″)	6410 (252½″)	7960 (313½″)
Height mm	1410 (55½″)	1740 (68½″)	2080 (82″)
Depth mm	260 (10¼″)	220 (8⅝″)	170 (6¾″)


Wall
Center of the screen
Height
Depth
Bottom of the picture
Center of the G lens
370 (14½)
180 (7⅛)
Floor
Length

Unit: mm (inches)
Tolerance in length: ±1%

Type 10

100″ - 250″ projection
Ceiling
Flat screen


Length
255 (10⅛)
PSS-722
Ceiling
level
Depth
Top of the picture
310 (12¼)
Height
Center of the G lens
Center of the screen
Wall

Decide the length, height, and depth according to the screen size to be used.

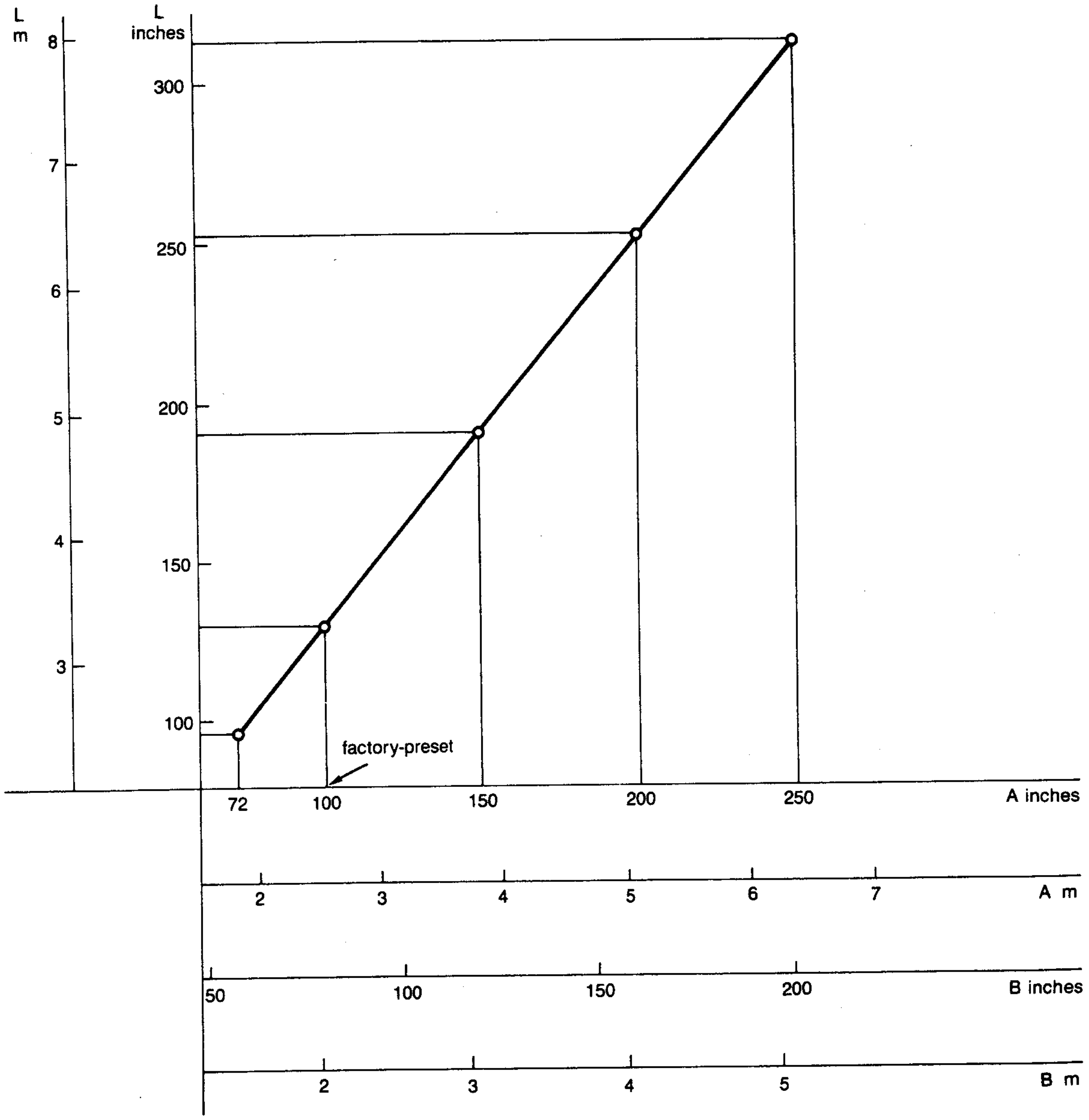
Screen size	150 inches	200 inches	250 inches
Length mm	4850 (191″)	6410 (252½″)	7960 (313½″)
Height mm	1350 (53¼″)	1680 (66¼″)	2020 (79½″)
Depth mm	200 (7⅞″)	160 (6⅜″)	110 (4⅜″)

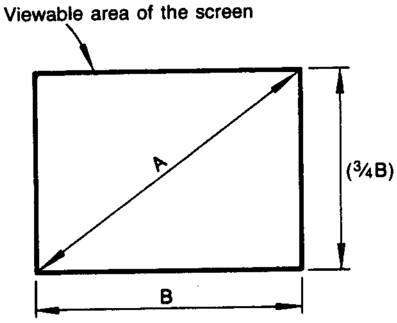
Unit: mm (inches)
Tolerance in length: ±1%

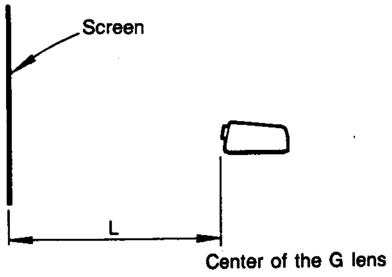
Type 9 and 10

100″ - 250″ projection

For screen not described on page 18, use the following graph to decide the length (L).



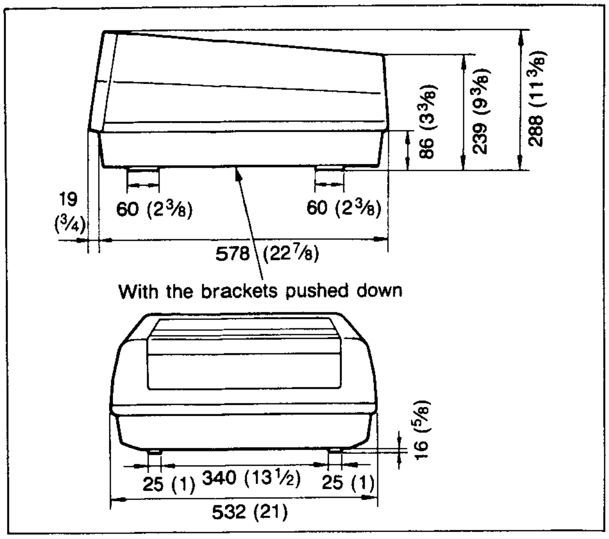

Viewable area of the screen
A
(¾B)
B


Screen
L
Center of the G lens

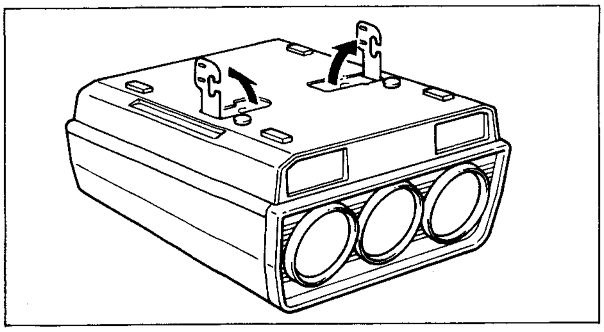
1-9. NOTES ON INSTALLATION

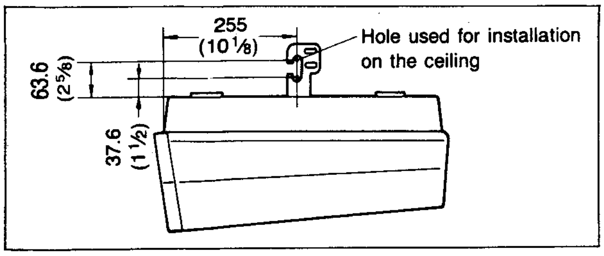
PROJECTOR'S DIMENSIONS

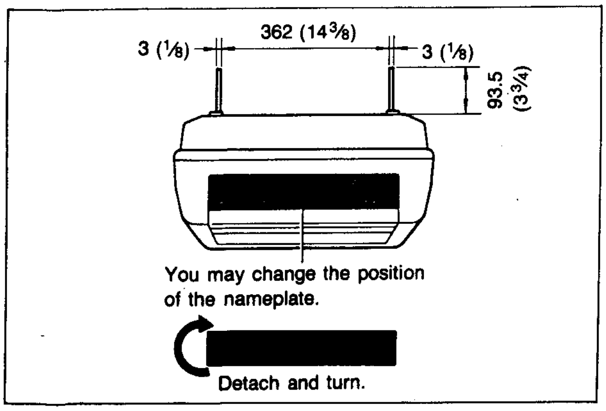
Unit: mm (inches)


86 (3⅜)
239 (9⅜)
288 (11⅜)
19 (¾)
60 (2⅜)
60 (2⅜)
578 (22⅞)
With the brackets pushed down
16 (⅝)
25 (1)
340 (13½)
25 (1)
532 (21)

Raise the brackets when installing the projector on the ceiling or floor.




255 (10⅛)
Hole used for installation on the ceiling
63.6 (2⅝)
37.6 (1½)

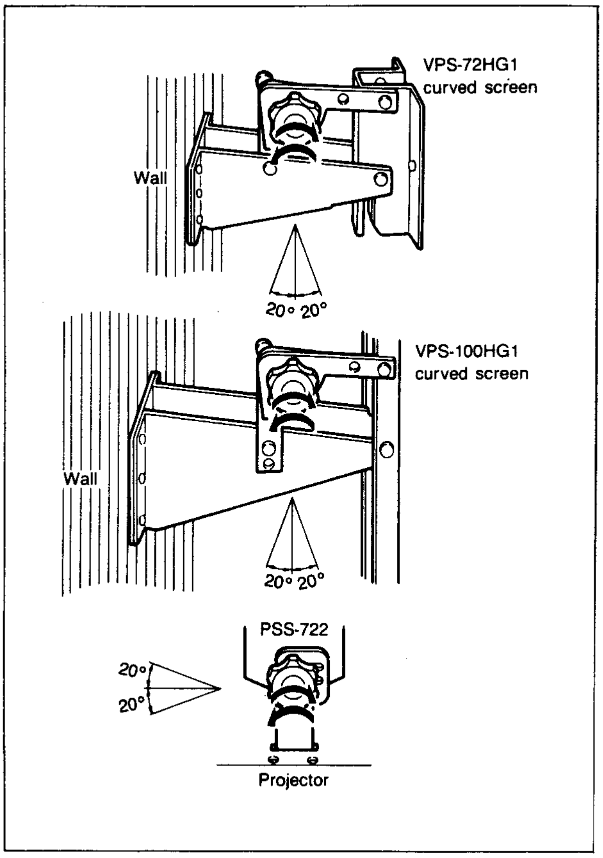

362 (14⅜)
3 (⅛)
3 (⅛)
93.5 (3¾)

You may change the position of the nameplate.

Detach and turn.

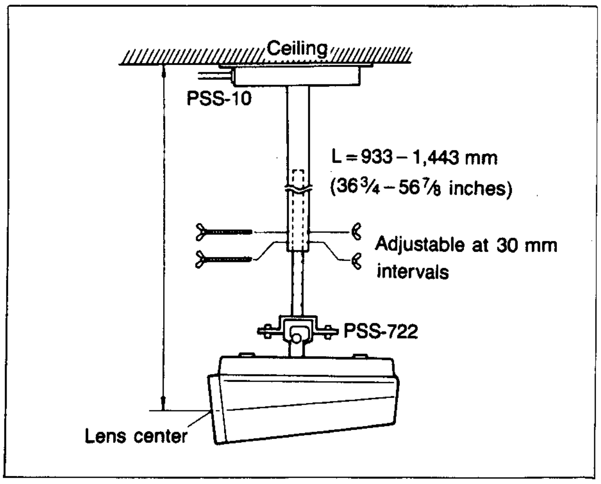
TO ADJUST THE ANGLE OF THE SCREEN/ PROJECTOR

Loosen the knobs, adjust the angle, then tighten the knobs down firmly.


VPS-72HG1 curved screen
Wall
20° 20°
VPS-100HG1 curved screen
Wall
20° 20°
PSS-722
20°
20°
Projector

When the PSS-10 projector suspension support (optional) is used in combination with the PSS-722

The PSS-10 allows you to adjust the distance between the ceiling and the projector.

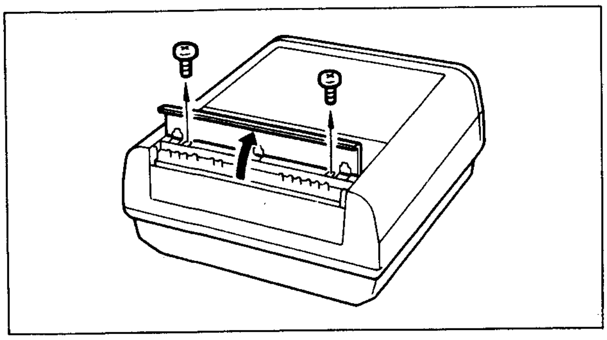

Ceiling
PSS-10
L=933-1,443 mm (36¾-56⅞ inches)
Adjustable at 30 mm intervals
PSS-722
Lens center

TO OPEN THE TOP PANEL

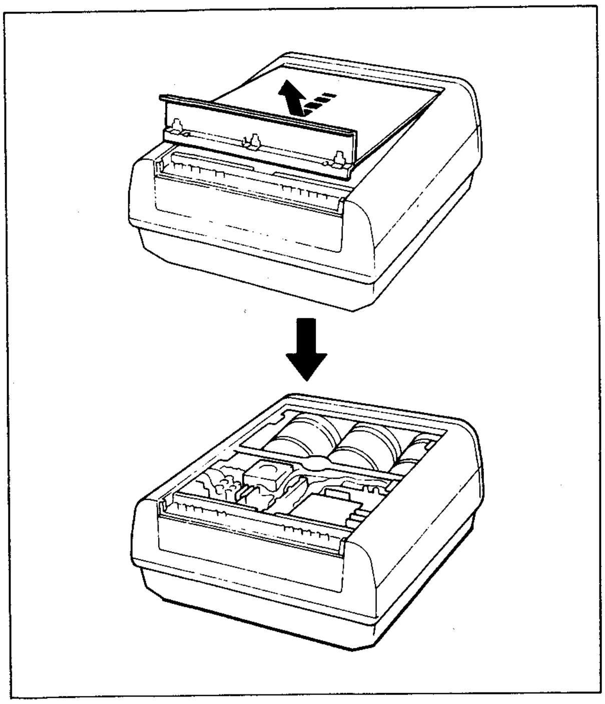
You will need a medium size Phillips head screwdriver.

1 Open the control panel cover.

2 Remove the two screws.



3 Pull the top panel slightly toward you and remove it.

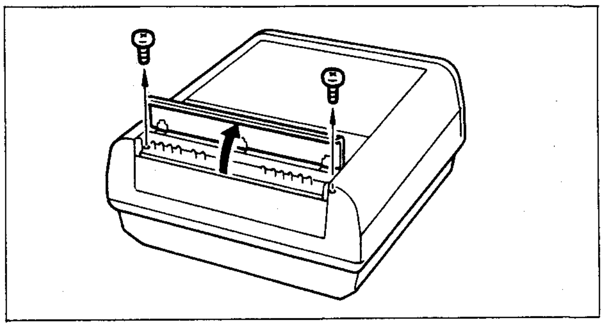


TO OPEN THE CABINET

Open the cabinet when changing the voltage selector setting and when converting the unit for 200" projection.

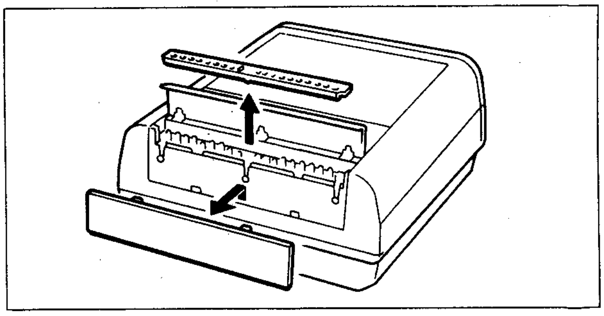
1 Open the control panel cover.

2 Remove the two screws on the control panel.

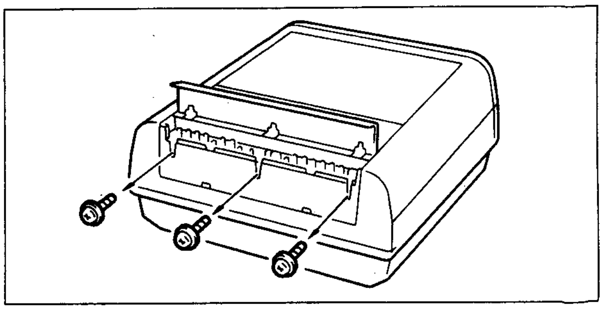


3 Slide the nameplate upward and pull it toward you to remove.

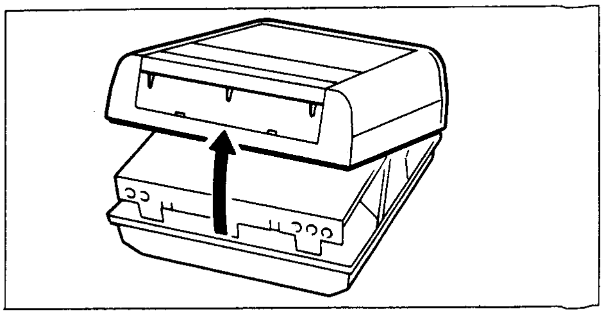
4 Remove the control panel.



5 Remove the three screws.

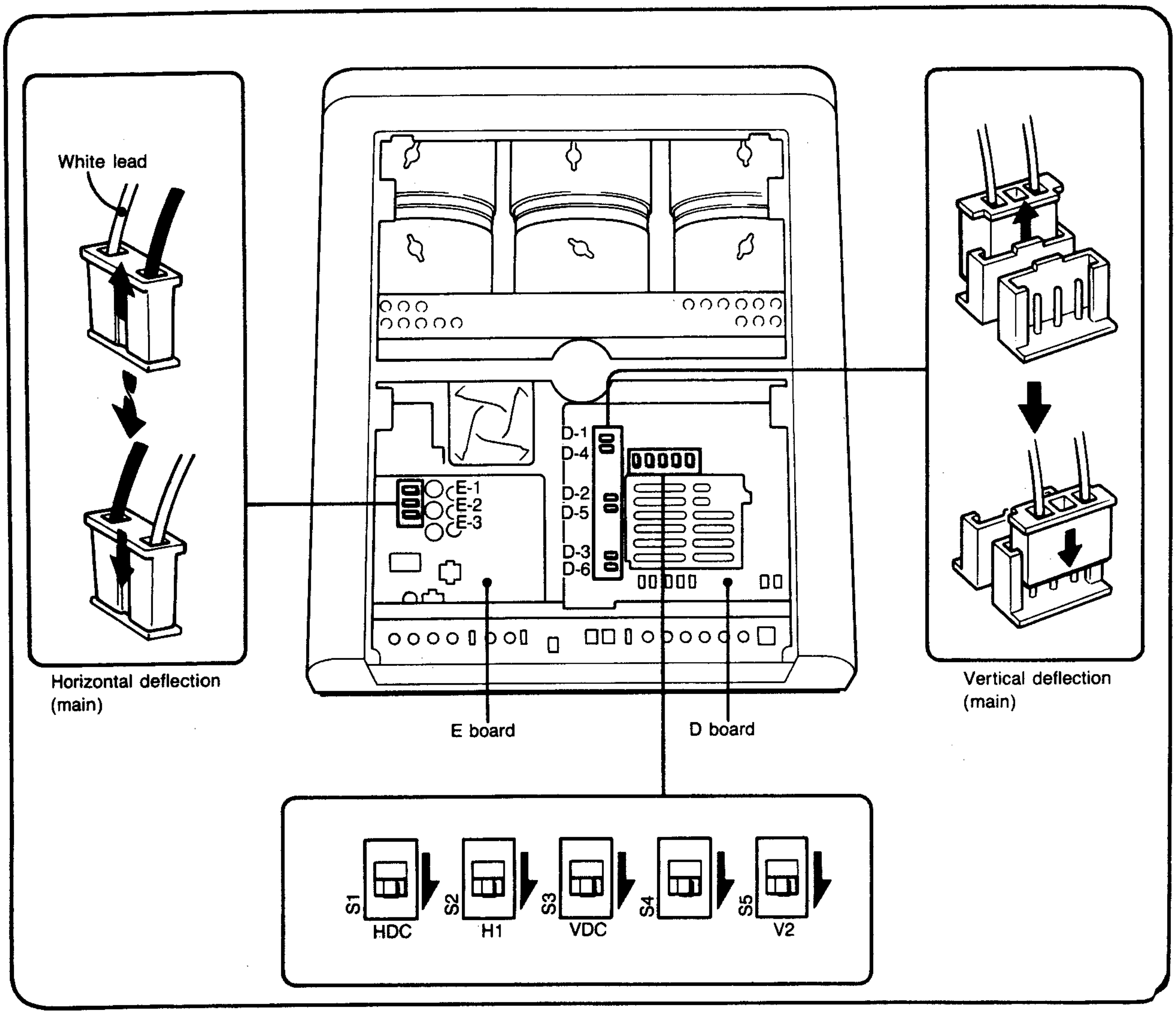


6 Raise the cabinet to remove.



1-10. POLARITY CHANGE

The projector is preadjusted at the factory for use on desk or floor with the bracket side down.
When the projector is installed on the ceiling with the bracket side up, the polarity should be changed.


White lead
Horizontal deflection (main)
D-1
D-4
E-1
E-2
E-3
D-2
D-5
D-3
D-6
E board
D board
Vertical deflection (main)
S1
HDC
S2
H1
S3
VDC
S4
S5
V2

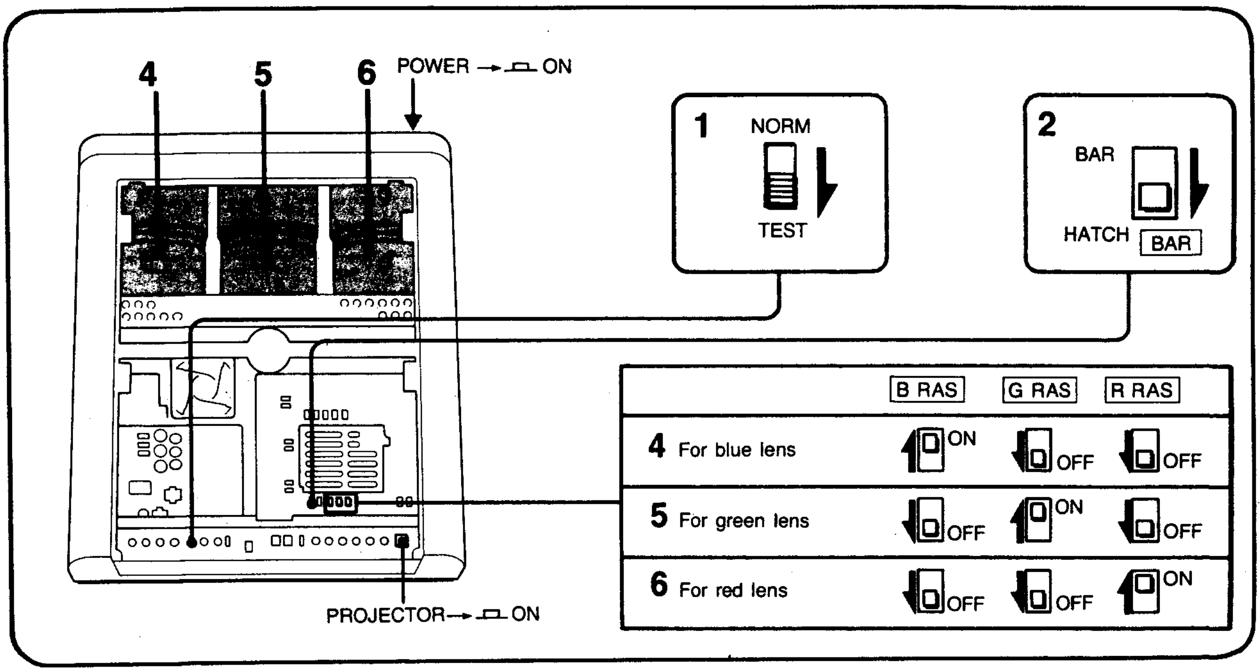
1. Make sure that power is not connected.
2. Open the top panel. (See page 21.)
3. Reverse the polarity of connectors E-1, 2 and 3.
4. Move the connectors from receptacles D-1, 2 and 3 to receptacles D-4, 5 and 6, respectively.
5. Set switches S1, 2, 3, 4 and 5 to the control panel side position.

Note

Check that the connectors are inserted firmly, then proceed to lens focus adjustment with the projector's top panel removed.

1-11. LENS FOCUS ADJUSTMENT

The lens focus is preadjusted at the factory for 100″ flat screen. For other type screens, the lens focus should be adjusted.



	B RAS	G RAS	R RAS
4 For blue lens	ON	OFF	OFF
5 For green lens	OFF	ON	OFF
6 For red lens	OFF	OFF	ON

Preparations

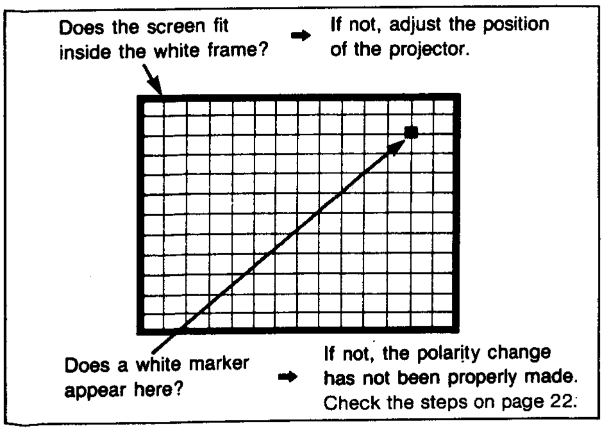
- Install the projector in the correct position on the floor or ceiling.
- Connect the supplied power cord to the AC IN socket and to an AC outlet, depress the POWER switch on the connector panel and the PROJECTOR switch.
  The green POWER lamp will light.
- Open the top panel. (See page 21.)

Adjustment

1 Set the NORM/TEST switch to TEST.

2 Set the BAR switch to HATCH.

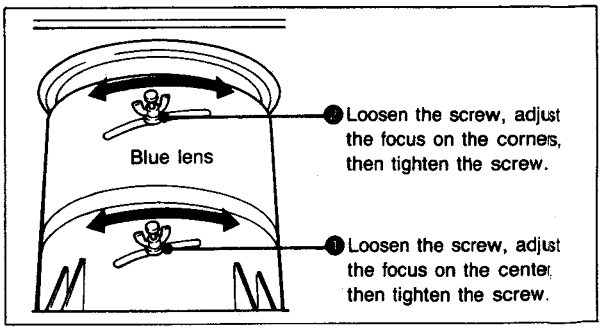
3 A cross hatch pattern will be displayed. Check the following.



Does the screen fit inside the white frame? → If not, adjust the position of the projector.

Does a white marker appear here? → If not, the polarity change has not been properly made. Check the steps on page 22.

4 Set the B RAS (blue raster) switch to ON, and the G RAS (green) and R RAS (red) switches to OFF, then adjust the focus of the blue lens.



● Loosen the screw, adjust the focus on the corners, then tighten the screw.

● Loosen the screw, adjust the focus on the center, then tighten the screw.

5 Set only the G RAS switch to ON, and the R RAS and B RAS switches to OFF, then adjust the focus of the green lens.

6 Set only the R RAS switch to ON, and the G RAS and B RAS switches to OFF, then adjust the focus of the red lens.

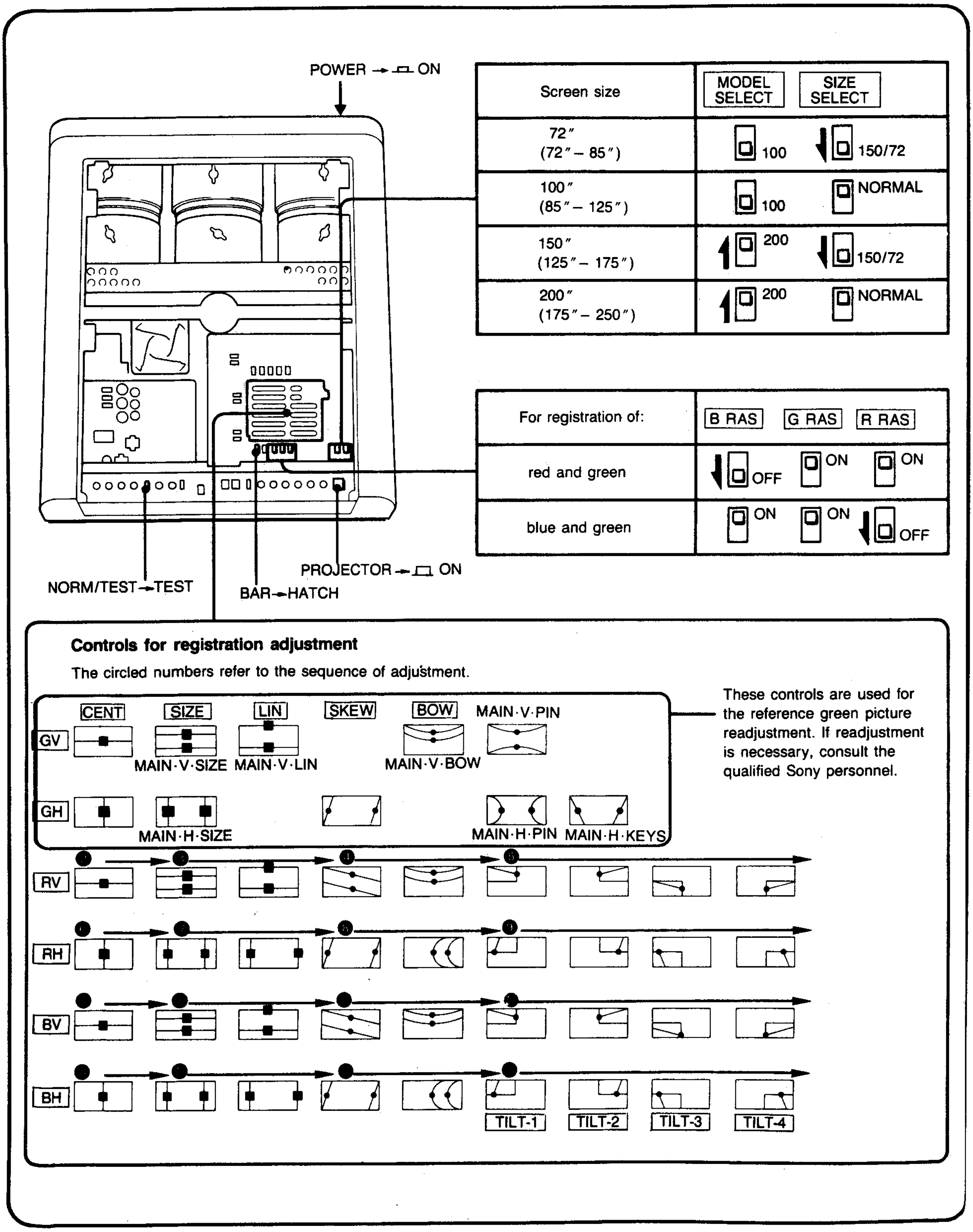
7 Replace the top panel. (Reverse the steps given on page 21.)

Proceed to registration adjustment.

Caution
Take care not to touch portions of the projector other than those indicated above because dangerous high voltages are present. To change the polarity, first turn the POWER switch off.

1-12. REGISTRATION ADJUSTMENT

Use a small screwdriver to adjust the controls through the holes.


POWER → ON
NORM/TEST → TEST
PROJECTOR → ON
BAR → HATCH
CENT
SIZE
LIN
SKEW
BOW
MAIN·V·PIN
GV
MAIN·V·SIZE
MAIN·V·LIN
MAIN·V·BOW
GH
MAIN·H·SIZE
MAIN·H·PIN
MAIN·H·KEYS
RV
RH
BV
BH
TILT-1
TILT-2
TILT-3
TILT-4

Screen size	MODEL SELECT	SIZE SELECT
72″ (72″ – 85″)	100	150/72
100″ (85″ – 125″)	100	NORMAL
150″ (125″ – 175″)	200	150/72
200″ (175″ – 250″)	200	NORMAL

For registration of:	B RAS	G RAS	R RAS
red and green	OFF	ON	ON
blue and green	ON	ON	OFF

Controls for registration adjustment

The circled numbers refer to the sequence of adjustment.

These controls are used for the reference green picture readjustment. If readjustment is necessary, consult the qualified Sony personnel.

Preparations

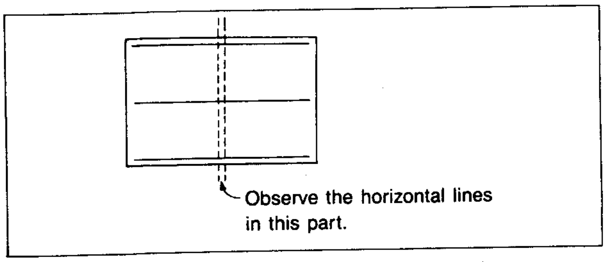
- Keep the G RAS switch at ON and set the B RAS and R RAS switches to OFF. A green cross hatch pattern will be displayed.
- Check the position of the projector, polarity and lens focus referring to page 23.
- Set the MODEL SELECT and SIZE SELECT switches according to the screen size.
  Set the MODEL SELECT switch to 100 for 72″ – 125″ projection, and to 200 for 125″ – 250″ projection.
  Set the SIZE SELECT switch to NORMAL for 85″ – 125″ and 175″ – 250″ projection, and to 150/72 for 72″ – 85″ and 125″ – 175″ projection.

Vertical registration of the red and green pictures

❶Set the B RAS switch to OFF and the G RAS and R RAS switches to ON.

❷Adjust the RV CENT control so that the red horizontal lines and the green horizontal lines converge in the middle of the screen.

❸Adjust the RV SIZE control (and the RV LIN control, if necessary) so that the red horizontal lines and the green horizontal lines coverge at the upper and lower sides of the screen.



(Repeat steps ❷ and ❸ as necessary.)

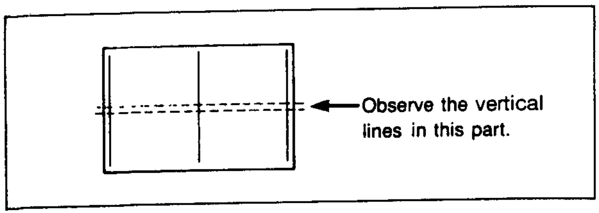
❹Adjust the RV SKEW and RV BOW controls if the red horizontal lines and the green horizontal lines do not converge in the middle of the screen.

❺Adjust the RV TILT-1 through TILT-4 controls so that the red horizontal lines and the green horizontal lines converge in the corners of the screen.

Horizontal registration of the red and green pictures

❻Adjust the RH CENT control so that the red vertical lines and the green vertical lines converge in the middle of the screen.

❼Adjust the RH SIZE control (and the RH LIN control, if necessary) so that the red vertical lines and the green vertical lines converge at the right and left sides of the screen.



(Repeat steps ❻ and ❼ as necessary.)

❽Adjust the RH SKEW and RH BOW controls so that the red vertical lines and the green vertical lines converge in the middle of the screen.

❾Adjust the RH TILT-1 through TILT-4 controls so that the red vertical lines and the green vertical lines converge at the corners of the screen.

Proceed to the following adjustments in the same manner as with red and green registration, setting the R RAS switch to OFF and the B RAS and G RAS switches to ON.

Vertical registration of the blue and green pictures

●Adjust the BV CENT control.

●Adjust the BV SIZE control, and BV LIN if necessary.

●Adjust the BV SKEW and BV BOW controls, if necessary.

●Adjust the BV TILT-1 through TILT-4 controls.

Horizontal registration of the blue and green pictures

●Adjust the BH CENT control.

●Adjust the BH SIZE control, and BH LIN if necessary.

●Adjust the BH SKEW and BH BOW controls.

●Adjust the BH TILT-1 through TILT-4 controls.

When registration is complete

Set the switches to the following positions.
R, G, B RAS switches → ON position
BAR switch → BAR
NORM/TEST switch → NORM

Replace the top panel. (Reverse the steps given on page 21.)

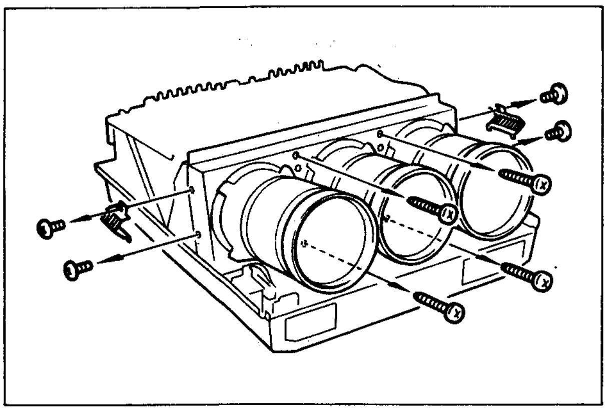
1-13. CONVERSION FOR 200" (150" – 250") PROJECTION

1 Separate the lens block from the main body.

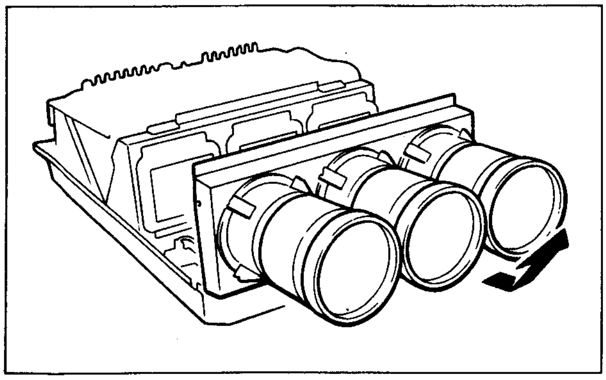
❶Open the cabinet. (See page 21.)

❷Remove the 4 screws from the sides of the projector.

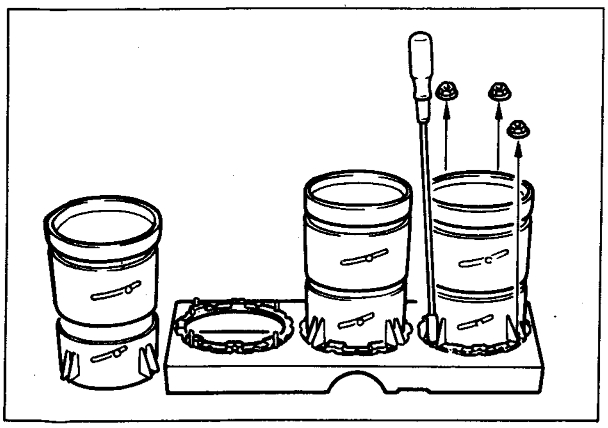
❸Remove the 4 black screws from the lens base.



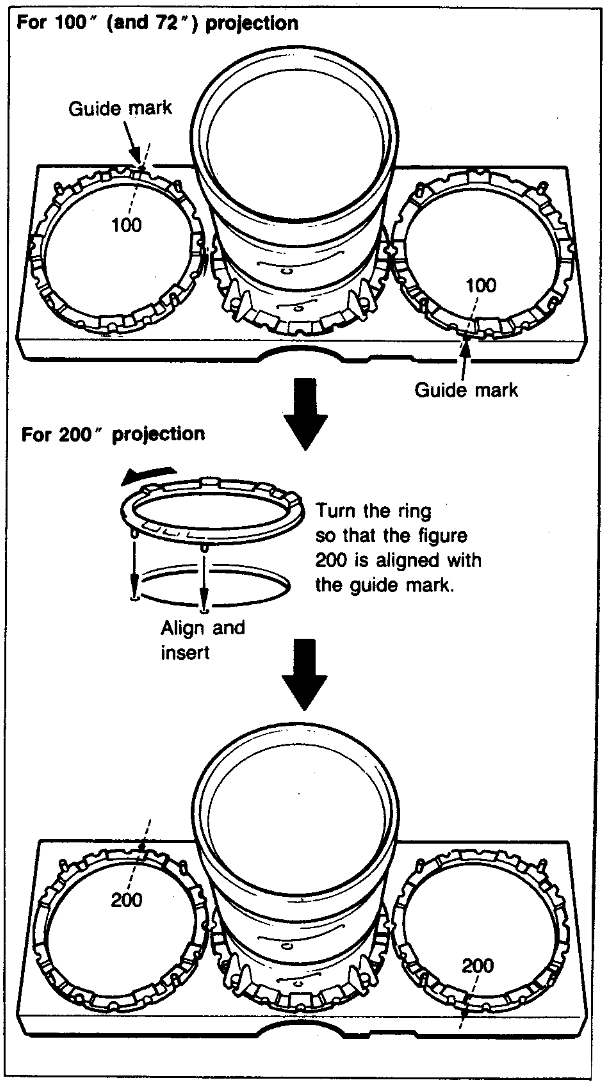
❹Pull the lens block out.



❺Remove the 4 nuts and detach the red and blue lenses from the lens base.
Use an 8 mm nutdriver.



2 Change the positions of the lens rings.


For 100″ (and 72″) projection
Guide mark
100
100
Guide mark
For 200″ projection
Turn the ring so that the figure 200 is aligned with the guide mark.
Align and insert
200
200

3 Adjust the mounting angles of the CRTs.

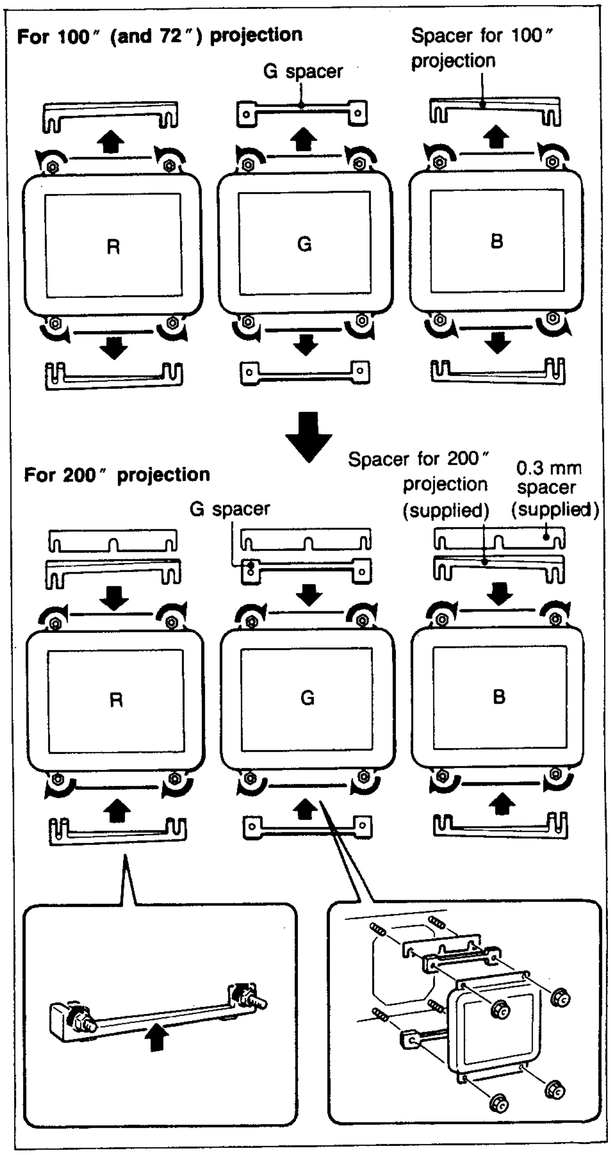
Use an 8 mm nutdriver.

❶ Loosen the nuts and remove all the spacers from the top and bottom of each lens.

❷ Insert the supplied spacers for 200″ projection, 0.3 mm spacers and G spacers as follows:
R and B lenses: A spacer for 200″ and a 0.3 mm spacer for the top; a spacer for 200″ for the bottom
G lens: A G spacer removed in step ❶ and a 0.3 mm spacer for the top; a G spacer removed in step ❶ for the bottom
Insert the spacers for 200″ with the thinner end toward the center CRT.

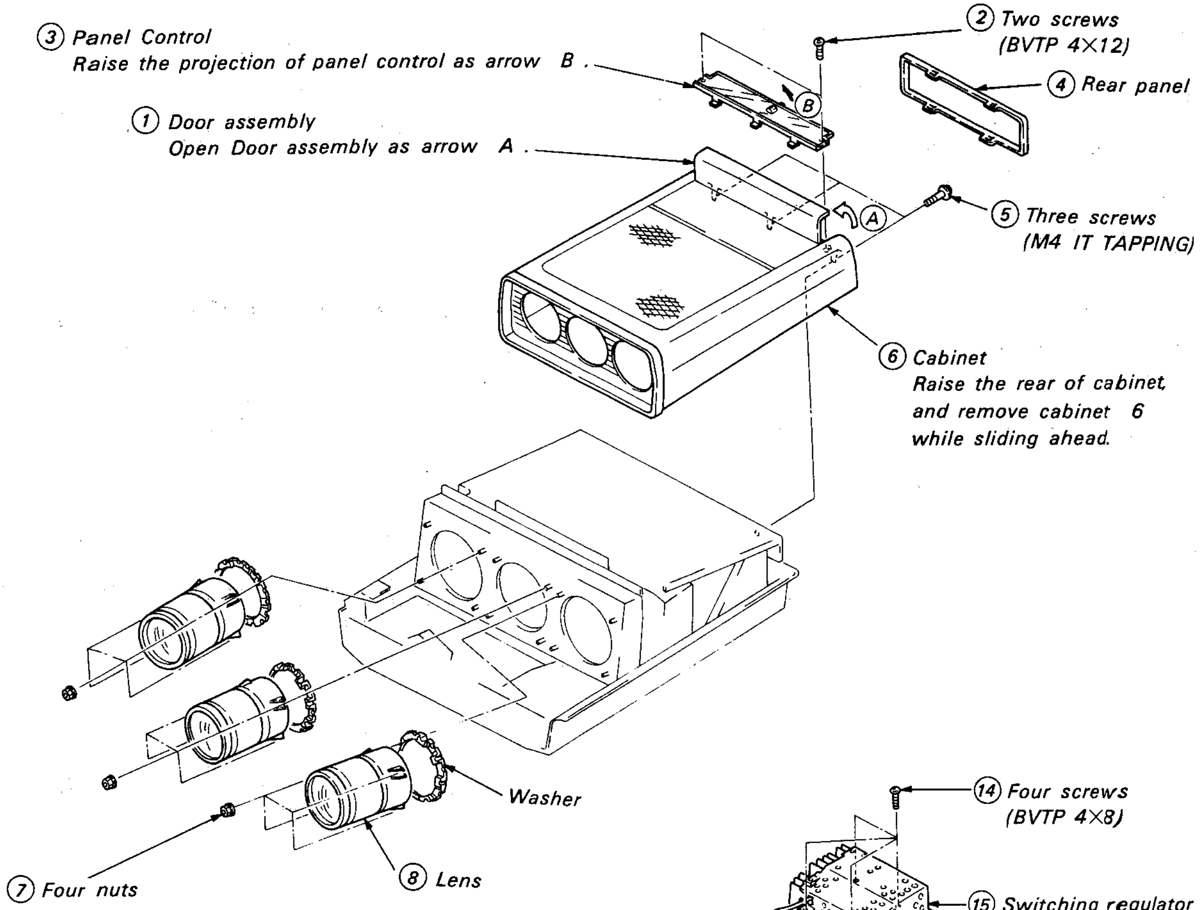
❸ Tighten all the nuts completely for accurate angles of the lenses.

After adjustment is complete, replace the lens block in the main body and close the cabinet.
(Reverse the steps given in section 1.)

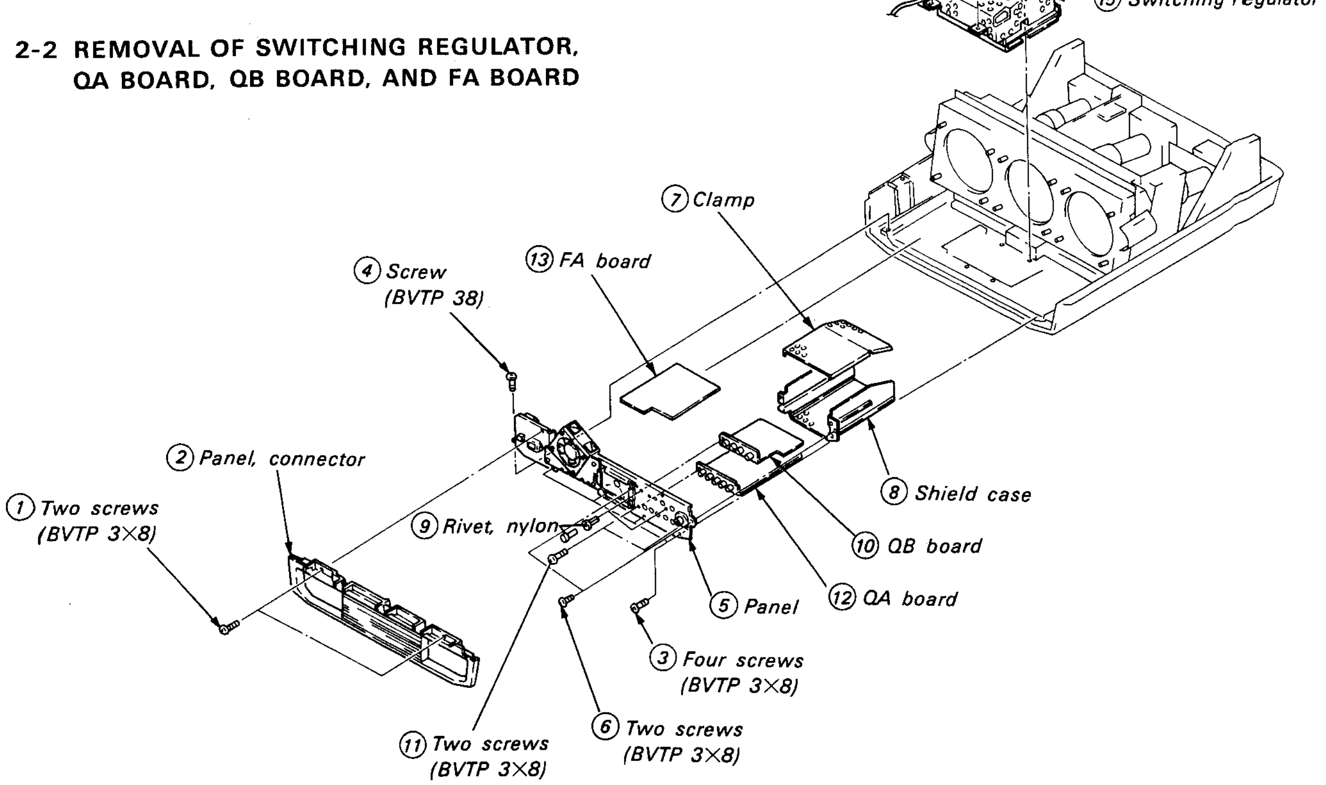

For 100″ (and 72″) projection
G spacer
Spacer for 100″ projection
R
G
B
For 200″ projection
G spacer
Spacer for 200″ projection (supplied)
0.3 mm spacer (supplied)
R
G
B

SECTION 2
DISASSEMBLY

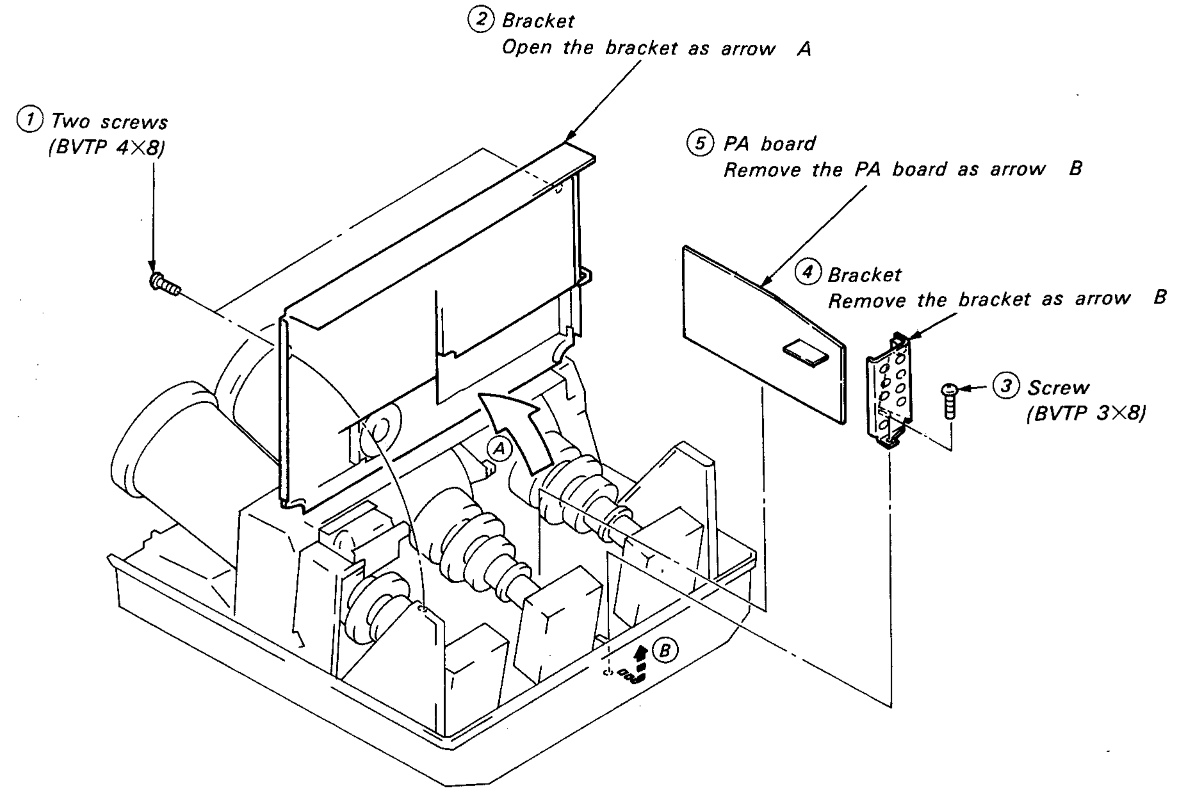
2-1 REMOVAL OF LENS


③ Panel Control
Raise the projection of panel control as arrow B .
① Door assembly
Open Door assembly as arrow A .
② Two screws (BVTP 4×12)
④ Rear panel
B
A
⑤ Three screws (M4 IT TAPPING)
⑥ Cabinet
Raise the rear of cabinet and remove cabinet 6 while sliding ahead.
Washer
⑦ Four nuts
⑧ Lens
⑭ Four screws (BVTP 4×8)
⑮ Switching regulator

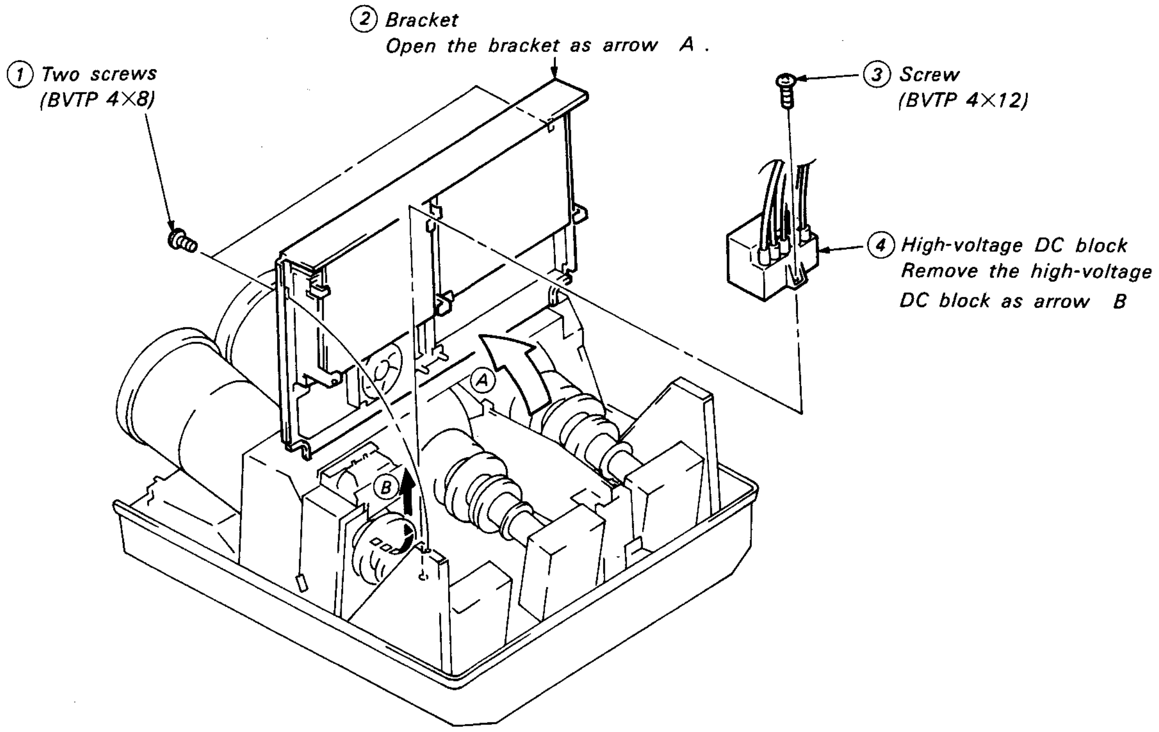
2-2 REMOVAL OF SWITCHING REGULATOR, QA BOARD, QB BOARD, AND FA BOARD


⑦ Clamp
⑬ FA board
④ Screw (BVTP 38)
② Panel, connector
① Two screws (BVTP 3×8)
⑨ Rivet, nylon
⑧ Shield case
⑩ QB board
⑫ QA board
⑤ Panel
③ Four screws (BVTP 3×8)
⑥ Two screws (BVTP 3×8)
⑪ Two screws (BVTP 3×8)

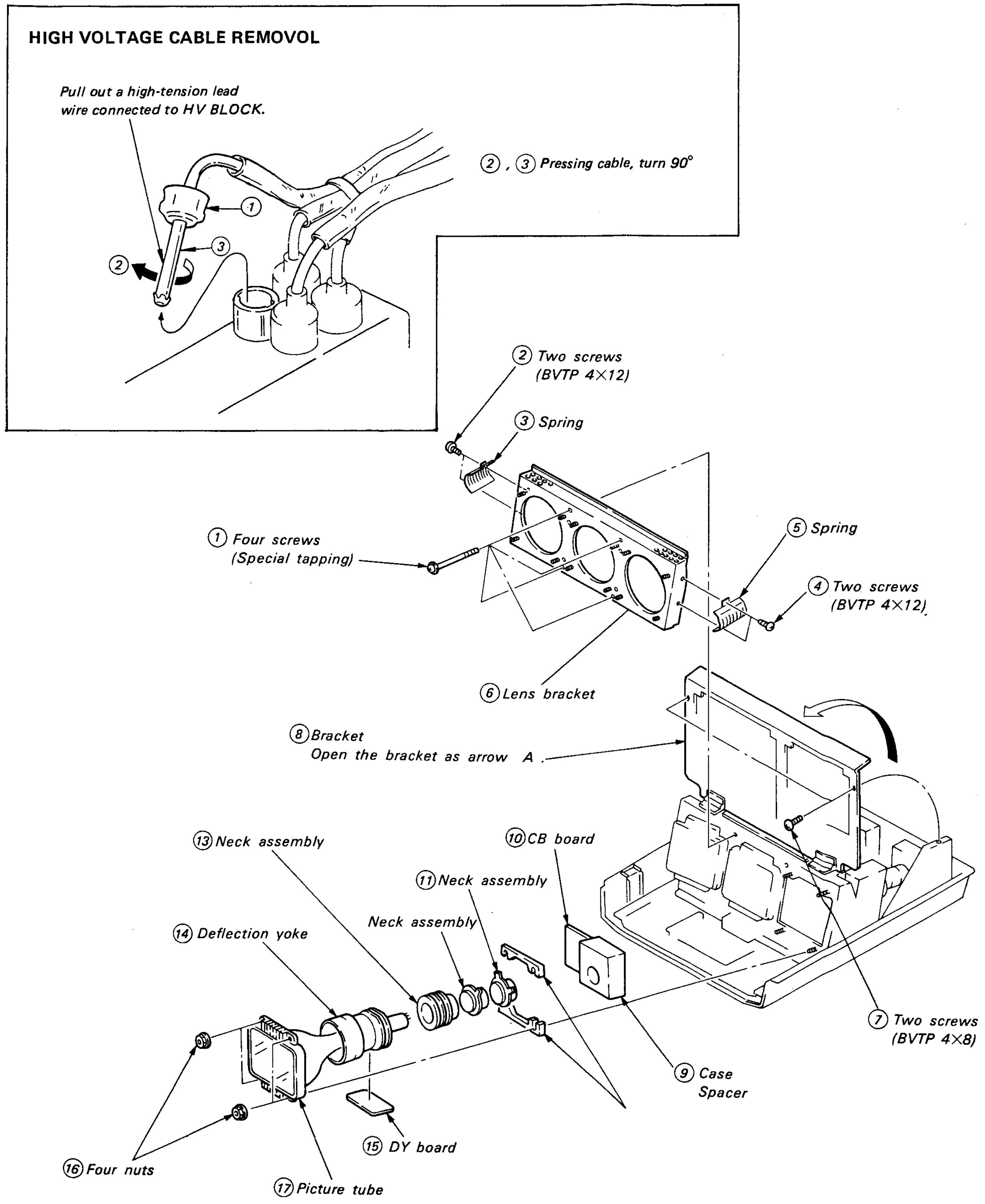
2-3 REMOVAL OF PA BOARD


② Bracket
Open the bracket as arrow A
① Two screws
(BVTP 4×8)
⑤ PA board
Remove the PA board as arrow B
④ Bracket
Remove the bracket as arrow B
③ Screw
(BVTP 3×8)
A
B

2-4 REMOVAL OF HIGH-VOLTAGE DC BLOCK


② Bracket
Open the bracket as arrow A .
① Two screws
(BVTP 4×8)
③ Screw
(BVTP 4×12)
④ High-voltage DC block
Remove the high-voltage
DC block as arrow B
A
B

2-5 REMOVAL OF PICTURE TUBE


HIGH VOLTAGE CABLE REMOVOL
Pull out a high-tension lead
wire connected to HV BLOCK.
②, ③ Pressing cable, turn 90°
①
②
③
② Two screws
(BVTP 4×12)
③ Spring
① Four screws
(Special tapping)
⑤ Spring
④ Two screws
(BVTP 4×12)
⑥ Lens bracket
⑧ Bracket
Open the bracket as arrow A .
⑬ Neck assembly
⑩ CB board
⑪ Neck assembly
Neck assembly
⑭ Deflection yoke
⑦ Two screws
(BVTP 4×8)
⑨ Case
Spacer
⑮ DY board
⑯ Four nuts
⑰ Picture tube

SECTION 3
CIRCUIT DESCRIPTIONS

3-1. HV REGULATION CIRCUIT

Outline

Basic operation of the circuit is amplification of the high voltage output.

Corresponding to power-up of HV components, design of high efficiency circuit is adopted in the HV regulator section. With employing +B chopper type HV regulator, the circuit efficiency was raised approx. 8% compared with conventional series-regulation circuit.

In result, as the efficiency of HV circuit, reducing 15 watts of power consumption was obtained.

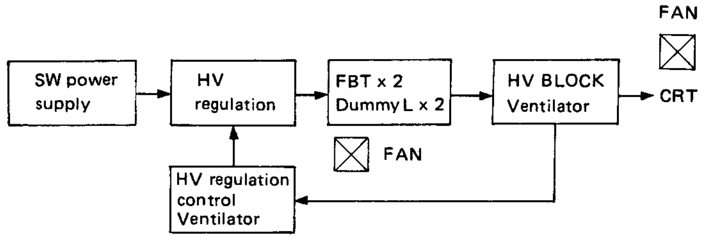
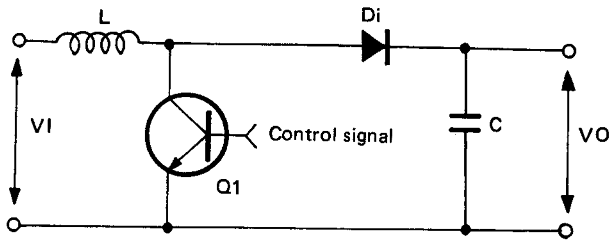

SW power supply
HV regulation
FBT x 2
Dummy L x 2
HV BLOCK
Ventilator
FAN
CRT
FAN
HV regulation control Ventilator

Fig. 1

3-1-1. HV REGULATION SECTION


L
Di
VI
Control signal
Q1
C
VO

$$VO=\frac{T\ ON+T\ OFF}{T\ OFF}\times VI$$

Fig. 2

Basic circuit is a voltage-boost type switching regulation circuit as shown in Fig. 2.

Energy stored in L during Q1 is ON, is added to the power supply input to deliver to the load during Q1 is OFF.

HV regulation is operated by controlling ON-period of Q1.

3-1-2. HV REGULATION CONTROL SECTION

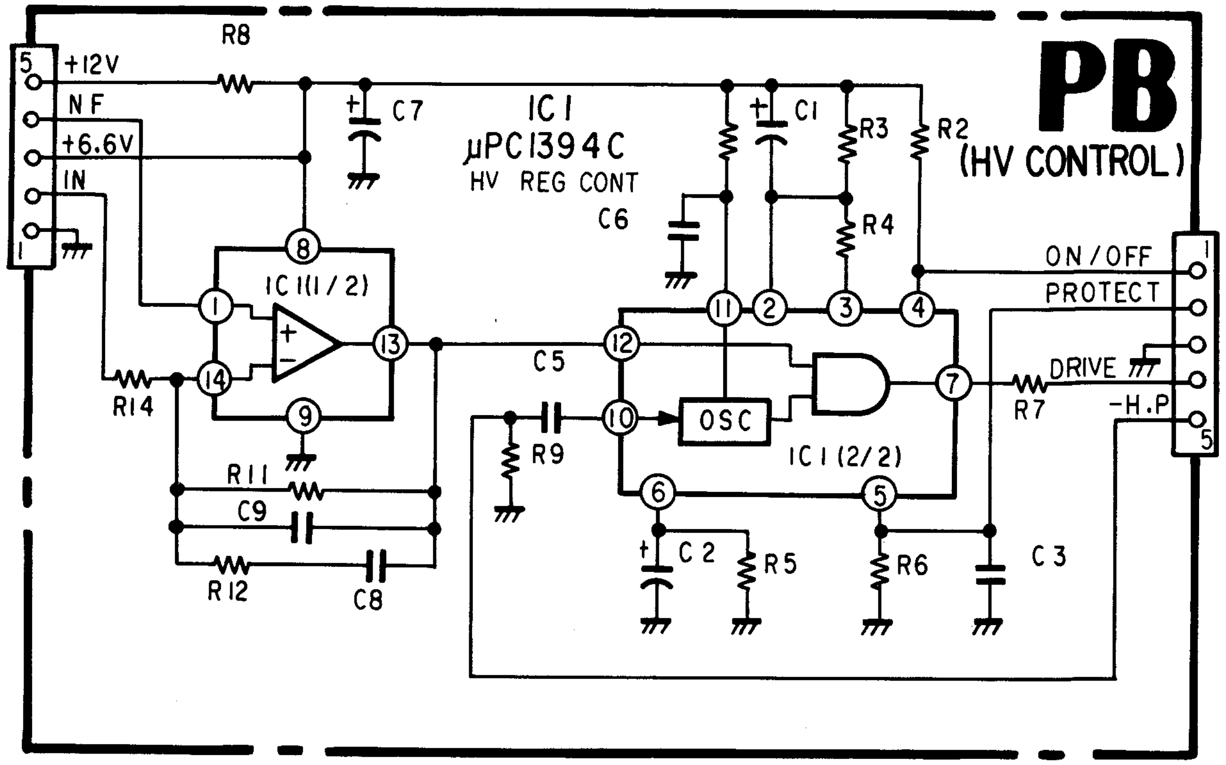

PB
(HV CONTROL)
5
+12V
NF
+6.6V
IN
1
R8
C7
IC1
μPC1394C
HV REG CONT
C6
C1
R3
R2
R4
IC1(1/2)
ON/OFF
PROTECT
DRIVE
-H.P
1
5
C5
OSC
IC1 (2/2)
R7
R14
R9
R11
C9
R12
C8
C2
R5
R6
C3

Fig. 3

Detected voltage from HV regulator is applied to pin ① of IC1 (μPC1394C), and reference voltage is input to pin ⑭.

If voltage of pin ① is lowered than that of pin ⑭ (decrease of HV), voltage of pin ⑬ is decreased. The output of pin ⑬ and sawtooth generated by pins ⑩ and ⑪ are voltage compared, and an output having pulse width corresponding to the voltage is delivered from pin ⑦.

In this case, the pulse width at pin ⑦ is widened.

Pin ⑤ and ⑥ are cut-off circuit section which locks voltage of pin ⑦ in high level in case trouble is occurred in load.

Maximum duty time (period of ON) of output transistor is decided in pin ②.

SECTION 4
SET-UP ADJUSTMENTS

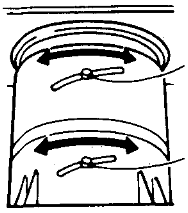
4-1. BASIC ADJUSTMENTS

Basic Adjustments
<Registration>

1) Degauss the entire chassis.
2) Set the variable resistor on the D board to mechanical center. Also, set the D board H CENT and V CENT to mechanical center.
3) Adjust the knobs and switches on the set as follows:
   BRIGHT: fully clockwise (maximum)
   PICTURE: maximum

4-2. GREEN FOCUS Adjustment

1) Receive a monoscope signal.
2) Cover the RED and BLUE lenses.
3) Set the GREEN lens SUB lens fully forward.
4) Rotate the MAIN lens and set for optimum focus on the screen.
5) Turn the GREEN focus VR on the focus pack and set for optimum conditions.
6) Rotate the MAIN lens for best focus in the center of the screen and temporarily tighten the lens screw.
7) Rotate the SUB lens for best focus in the center of the screen and tighten the lens screw.
8) Loosen the MAIN lens screw, fine adjust the focus, then tighten the MAIN lens screw.
9) Turn GREEN FOCUS VR (FOCUS PACK) slightly to clockwise so that focus will be off side.
10) Input a dot pattern.
11) As shown in Fig. 1-3, put the before and behind magnets upon each other on 4-pole magnet.
12) Observe the center of screen and if dots are distorted, adjust the above two magnets for the finest round as Fig. 1-4.
13) Adjust GREEN FOCUS VR (FOCUS PACK) to the best focus.



2) Loosen the screw and adjust the focus, then for the periphery tighten the screw again.

1) Loosen the screw and adjust the center focus, then tighten the screw again.

Figure 1-1

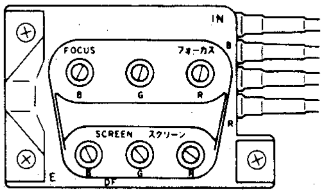


Figure 1-2

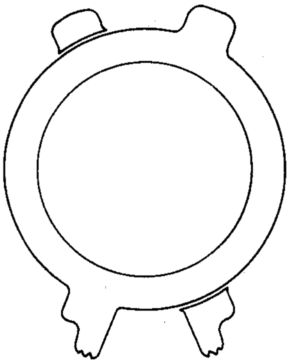


Figure 1-3

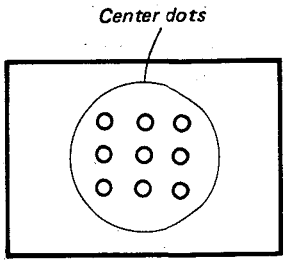


Figure 1-4

4-3. RED FOCUS Adjustment

1) Remove the RED lens cover and cover the GREEN and BLUE lenses.
2) Adjust in the same way as for GREEN FOCUS adjustment, steps 2-13.

4-4. BLUE FOCUS Adjustment

1) Remove the BLUE lens cover and cover the RED lens.
2) Put the CRT NECK ASS'Y (BLUE ring magnet) lever (A) and lever (B) together at the top of the CRT neck.
3) Rotate the MAIN lens for best focus on the screen.
4) Turn the focus pack BLUE focus VR for best focus.
5) Rotate the MAIN lens and set for best focus in the center of the screen, and temporarily tighten the lens screw.
6) Rotate the SUB lens and set for best focus in the center of the screen, then tighten the lens screw.
7) Loosen the MAIN lens screw, fine adjust focus, then tighten the MAIN lens screw.

4-5. GREEN Picture Adjustment

1) Input a PAL monoscope signal.
2) Loosen the DY screw and adjust so that the center monoscope line is parallel to those at the left and right, then temporarily tighten the screw.
3) Loosen the SUB DY screw and adjust so that the signal moves parallel, to the left and right, when the D board GREEN H.CENT VR (RV10) is moved, then temporarily tighten the screw.
4) Adjust D board GREEN H.CENT VR (RV10) and GREEN V.CENT VR (RV5) so that the center of the monoscope signal is lined up to the screen center mark.

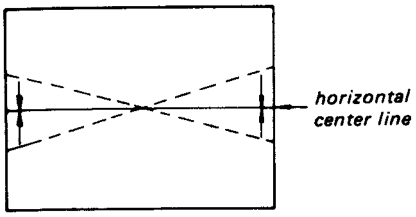


Figure 2

5) Tighten the screws after positioning the DY and SUB DY correctly.
6) Adjust D board MAIN H.SIZE VR (RV11) GREEN V.SIZE VR (RV6) and GREEN V.LIN (RV7) and perform rough size adjustment.

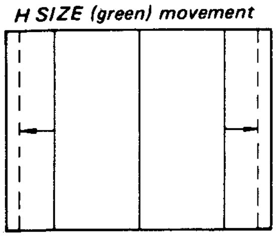


Figure 3

7) Adjust D board MIAN V.PIN VR (RV9) so that the lines at the top and bottom of the signal are almost parallel with the screen.

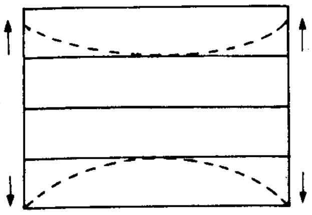


Figure 4

8) Receive an NTSC monoscope signal.
9) Adjust D board GREEN V.BOW (RV8) so that the monoscope signal horizontal center line is parallel with the screen horizontal center line, then adjust GREEN V.CENT VR (RV5) again to match up to the center line.

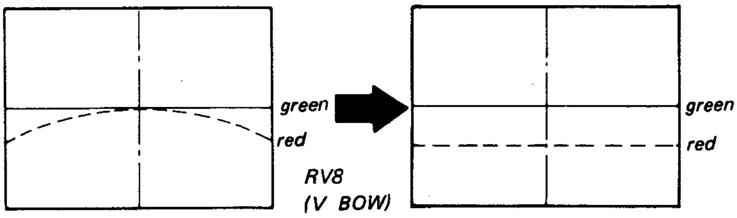


Figure 5

10) Receive a PAL monoscope signal.
11) Adjust D board GREEN V.LIN (RV7) so that the number of grids at the top and bottom of the signal are the same.

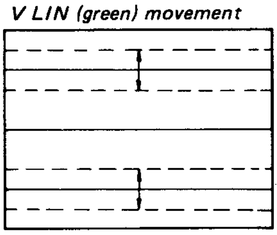


Figure 6

12) Adjust D board GREEN V.SIZE (RV6) so that there are about 11.0 grids at the top and bottom of the monoscope signal.

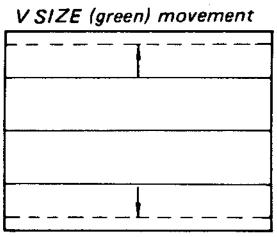


Figure 7

13) Adjust D board MAIN V.PIN (RV9) so that the top and bottom monoscope signal lines are parallel with the screen frame.
14) Line up the monoscope signal center vertical line to the screen center vertical line by adjusting D board GREEN H.SKEW (RV13) and GREEN H.CENT (RV10).

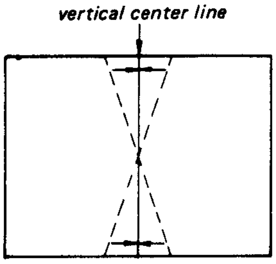


Figure 8

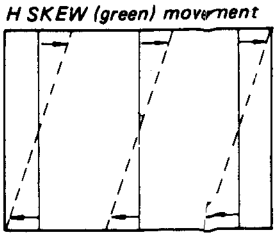


Figure 9

15) Adjust D board MAIN H.KES (RV15) and MAIN H.PIN (RV14) so that the monoscope signal left and right vertical lines are parallel with the screen.
16) Adjust D board MAIN H.SIZE (RV11) so that the number of grids to the left and right of the monoscope signal center vertical line is about 7.4 on each side.

4-6. RED DY Adjustment

1) Turn D board blue RAS SW (S10) off and project green and red.
2) Adjust D board RED V.CENT (RV16), RED V.LIM (RV18), RED H.CENT (RV25) and RED H.LIN (RV27) to line up the red and green monoscope centers.

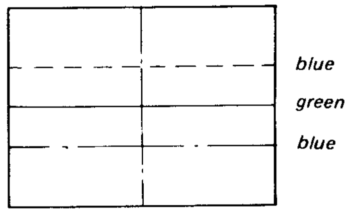


Figure 10

3) Loosen the RED DY screw.
4) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
5) Adjust D board RED V.BOW (RV20) so that the horizontal center line is straight.

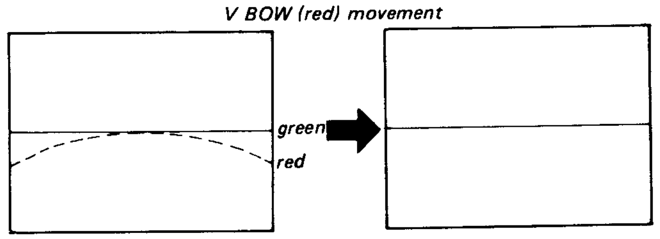


Figure 11

6) Rotate the RED DY until the horizontal center line is parallel with green, then tighten the screw.
7) Loosen the SUB DY screw, rotate the DY, and adjust so that the hatch moves parallel to the right and left, when the D board RED H.CENT VR (RV25) is moved, then tighten the screw.

4-7. TILT Adjustment

1) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
2) Line up the red horizontal center line center with the center of the green horizontal center line by adjusting D board RED V.CENT (RV16), RED V.BOW (RV20) and RED V.SKEW (RV19).
3) Line up the red top and bottom horizontal lines with the green top and bottom horizontal lines by adjusting D board RED V.SIZE (RV17) RED V.LIN (RV18) and RED V.SKEW (RV19).
4) Set the RED V.TILT VR's 1-4 as shown below.

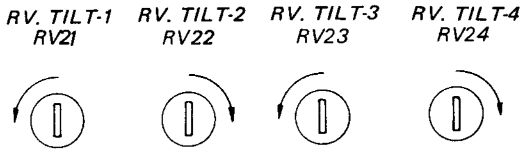


Figure 12

5) Set HA board NOR/TEST SW (S451) to NORMAL.
6) Receive an all-white signal.
7) Check that the red or green luminescent line can not be seen on the screen horizontal center line.
If it is visible, adjust D board KEYS CENT VR (RV3) until it disappears.
8) Set the RED V.TILT VR's 1-4 to mechanical center.
9) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
10) Adjust RED and BLUE V.SKEW (RV19, RV37) until the top and bottom horizontal green and red lines match (minimum distortion balanced evenly at all four corners).

4-8. G-R H. REGISTRATION Adjustment

1) Adjust D board RED H.BOW (RV29) so that the RED vertical center line straight.

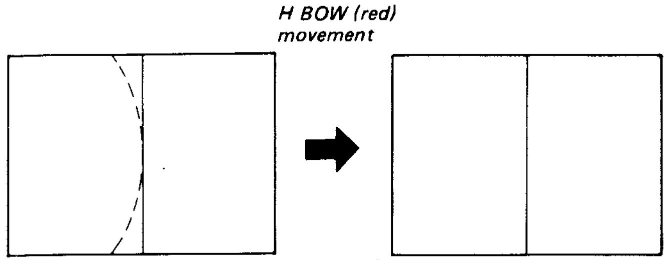


Figure 13

2) Adjust D board RED H.SKEW (RV28) so that the RED vertical center line is parallel to the green vertical center line.

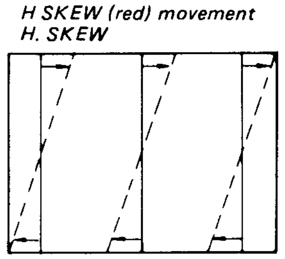


Figure 14

3) Adjust D board RED H.CENT (RV25) so that the RED and GREEN vertical center lines match up.

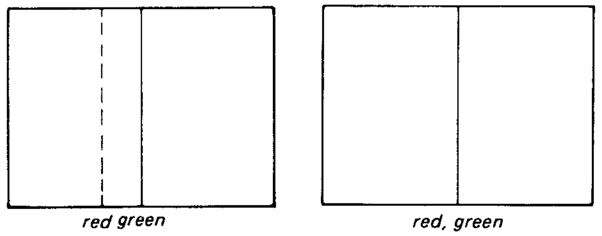
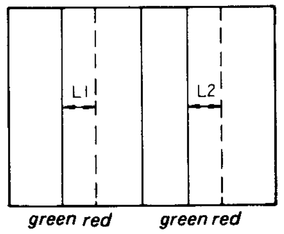


Figure 15

4) Adjust E board RED H.SIZE (L6) and D board RED H.LIN (RV27) so that the centers of the RED left and right vertical lines match up to the centers of the green left and right vertical lines.



(1) Adjust RV26 (H SIZE (R)) so that the red and green vertical lines overlap at the left and right sides of the screen, or so that L1 and L2 are the same distances.

Figure 16

4-9. G-R TILT Adjustment

1) Set D board HATCH SW (S8) to HATCH.
2) Adjust D board RED V.TILT-1 (RV21) and line up the RED upper left horizontal line to green.
3) Adjust D board RED V.TILT-2 (RV22) and line up the RED upper right horizontal line to green.
4) Adjust D board RED V.TILT-3 (RV23) and line up the RED lower left horizontal line to green.
5) Adjust D board RED V.TILT-4 (RV24) and line up the RED lower right horizontal line to green.
6) Adjust D board RED H.TILT-1 (RV30) and line up the RED upper left vertical line to green.
7) Adjust D board RED H.TILT-2 (RV31) and line up the RED upper right vertical line to green.
8) Adjust D board RED H.TILT-3 (RV32) and line up the RED lower left vertical line to green.
9) Adjust D board RED H.TILT-4 (RV33) and line up the RED lower right vertical line to green.

4-10. BLUE DY Adjustment

1) Set the HA board NOR/TEST SW (S8) to NORMAL and receive a monoscope signal.
2) Turn the D board RED RAS SW (S12) off and turn the BLUE RAS SW (S10) on.
3) Line up the BLUE monoscope signal center to green center by adjusting D board BLUE V.CENT (RV34), BLUE V.LIN (RV36), BLUE H.CENT (RV43) and BLUE H.LIN (RV45).
4) Loosen BLUE DY screw.
5) Set D board HATCH SW (S8) to HATCH.
6) Adjust D board BLUE V.BOW (RV38) so that the center horizontal line is straight.
7) Adjust BLUE DY so that the horizontal center line is parallel to green, then tighten the DY screw.
8) Loosen the SUB DY screw and rotate to adjust so that the hatch moves parallel to the left and right when D board BLUE H.CENT VR (RV43) is moved, then tighten the screw.

4-11
1)
2)
3)
4)
4-1
1)
2)
4-1
1)
2)
3)
4)
5)
6)
7)
8)

4-8. G-R H. REGISTRATION Adjustment

1) Adjust D board RED H.BOW (RV29) so that the RED vertical center line straight.

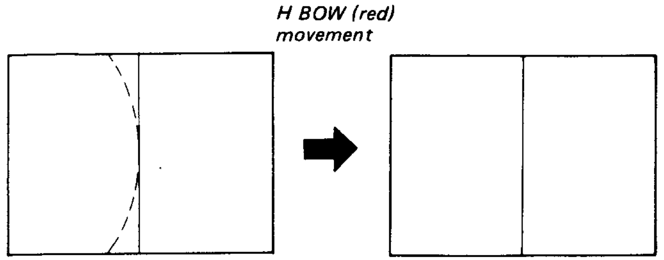


Figure 13

2) Adjust D board RED H.SKEW (RV28) so that the RED vertical center line is parallel to the green vertical center line.

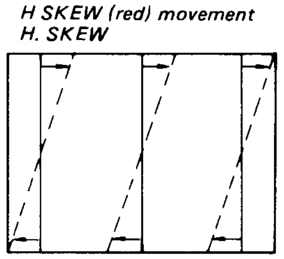


Figure 14

3) Adjust D board RED H.CENT (RV25) so that the RED and GREEN vertical center lines match up.

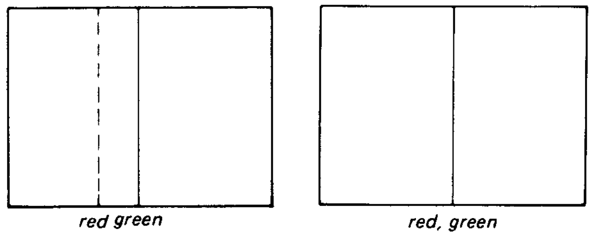
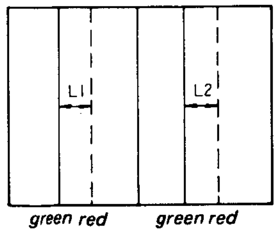


Figure 15

4) Adjust E board RED H.SIZE (L6) and D board RED H.LIN (RV27) so that the centers of the RED left and right vertical lines match up to the centers of the green left and right vertical lines.



(1) Adjust RV26 (H SIZE (R)) so that the red and green vertical lines overlap at the left and right sides of the screen, or so that L1 and L2 are the same distances.

Figure 16

4-9. G-R TILT Adjustment

1) Set D board HATCH SW (S8) to HATCH.
2) Adjust D board RED V.TILT-1 (RV21) and line up the RED upper left horizontal line to green.
3) Adjust D board RED V.TILT-2 (RV22) and line up the RED upper right horizontal line to green.
4) Adjust D board RED V.TILT-3 (RV23) and line up the RED lower left horizontal line to green.
5) Adjust D board RED V.TILT-4 (RV24) and line up the RED lower right horizontal line to green.
6) Adjust D board RED H.TILT-1 (RV30) and line up the RED upper left vertical line to green.
7) Adjust D board RED H.TILT-2 (RV31) and line up the RED upper right vertical line to green.
8) Adjust D board RED H.TILT-3 (RV32) and line up the RED lower left vertical line to green.
9) Adjust D board RED H.TILT-4 (RV33) and line up the RED lower right vertical line to green.

4-10. BLUE DY Adjustment

1) Set the HA board NOR/TEST SW (S8) to NORMAL and receive a monoscope signal.
2) Turn the D board RED RAS SW (S12) off and turn the BLUE RAS SW (S10) on.
3) Line up the BLUE monoscope signal center to green center by adjusting D board BLUE V.CENT (RV34), BLUE V.LIN (RV36), BLUE H.CENT (RV43) and BLUE H.LIN (RV45).
4) Loosen BLUE DY screw.
5) Set D board HATCH SW (S8) to HATCH.
6) Adjust D board BLUE V.BOW (RV38) so that the center horizontal line is straight.
7) Adjust BLUE DY so that the horizontal center line is parallel to green, then tighten the DY screw.
8) Loosen the SUB DY screw and rotate to adjust so that the hatch moves parallel to the left and right when D board BLUE H.CENT VR (RV43) is moved, then tighten the screw.

4-11. G-B V. REGISTRATION Adjustment

1) Line up the blue horizontal center line to the green horizontal center line by adjusting D board BLUE V.CENT (RV34), BLUE V.BOW (RV38) and BLUE V.SKEW (RV37).
2) Adjust D board BLUE V.SIZE (RV35) and BLUE V.LIN (RV36) so that the centers of the blue top and bottom horizontal lines match up to the centers of the green top and bottom horizontal lines.

4-12. G-B H. REGISTRATION Adjustment

1) Adjust D board BLUE H.BOW (RV47) so that the blue vertical center line is straight.
2) Adjust D board BLUE H.SKEW (RV46) so that the blue vertical center line is parallel to the green vertical center line.
3) Adjust D board BLUE H.CENT (RV43) so that the blue vertical center line matches up to the green vertical center line.
4) Adjust E board BLUE H.SIZE (L8) and D board RED H.LIN (RV27) so that the centers of left and right blue vertical lines match up to the centers of the green left and right vertical lines.

4-13. G-B TILT Adjustment

1) Line up the top left BLUE horizontal line to green by adjusting D board BLUE V.TILT-1 (RV39).
2) Line up top right BLUE horizontal line to green by adjusting D board BLUE V.TILT-2 (RV40).
3) Line up bottom left BLUE horizontal line to green by adjusting D board BLUE V.TILT-3 (RV41).
4) Line up bottom right BLUE horizontal line to green by adjusting D board BLUE V.TILT-4 (RV42).
5) Line up top left BLUE vertical line to green by adjuting D board BLUE H.TILT-1 (RV48).
6) Line up to right BLUE vertical line to green with D board BLUE H.TILT-2 (RV49).
7) Line up bottom left BLUE vertical line to green with D board BLUE H.TILT-3 (RV50).
8) Line up bottom right BLUE vertical line to green with D board BLUE H.TILT-4 (RV51).

4-14. White balance adjustment

1) Set up a stair step signal. (When using a color bar signal, turn off the color signal and the burst signal.) (G.DRIVE VR, B.DRIVE VR... MAX R.DRIVE VR... 80%)
2) Turn the focus pack RED, GREEN, and BLUE G2 VRs to their mechanical center.
3) Set the PICTURE VR and BRIGHTNESS VR to mechanical center.
4) Adjust the focus pack GREEN G2 VR so that red bar glows faintly.
5) Adjust the white balance with the RED and BLUE G2 VRs.
6) Set the PICTURE VR and BRIGHTNESS VR to maximum.
7) Adjust the white balance by turning the R DRIVE VR on the BB board. (Make sure not to touch the B DRIVE VR and G DRIVE VR.)

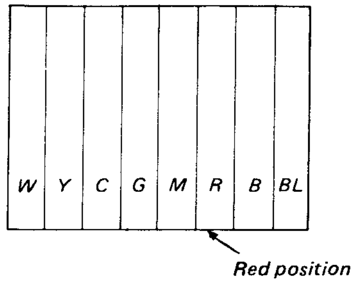


Figure 17

SECTION 5

SAFETY RELATED ADJUSTMENTS

5-1. PA AND PC BOARD ADJUSTMENTS

- *When replacing the following components, make the HV HOLD DOWN adjustment.*
  PA board complete
  R15, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, C30, D16, D22, Q10, IC2 } *PA board*
- *When replacing the following components, make the HV REG adjustment.*
  PA board complete
  R31, R32, R33, R34, R46, R47, R48, R49, R82, R83, R84, C3, C39, C56, L2, D17, Q14, IC1 } *PA board*
  PB board mount
  R3, R4, R7, R14, IC1 } *PB board*
- *When replacing the following components, make the BEAM CURRENT PROTECTOR adjustment.*
  PA board complete
  R16, R18, R19, R20, R21, R22, R23, R50, R51, R52, R53, R54, R69, D15, D20, Q9, Q11, Q12, IC3 } *PA board*
- *When replacing the following components, make the OVER VOLTAGE PROTECTOR adjustment.*
  PA board complete
  R18, R85, R86, R87, R88, R89, D18, IC1 . . . PA board.

(OTHER)
HVR, FBT1, FBT2, L1, L2, C1, C2

⊠ *R38, R39 HV HOLD DOWN ADJUSTMENT*

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*

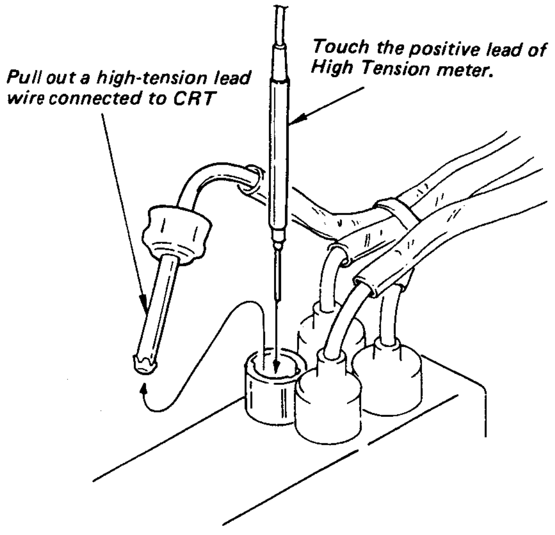

Touch the positive lead of High Tension meter.
Pull out a high-tension lead wire connected to CRT

Fig. 1

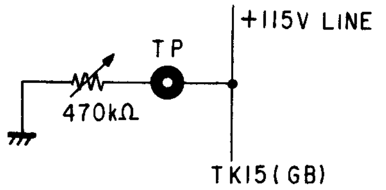
3. *Feed in a monoscope pattern from a signal generator, and maximize PICTURE and BRIGHT.*
4. *Confirm AC power supply voltage to be 120V.*
5. *Confirm that HV HOLD DOWN circuit operates and raster disappears when reading of the electrostatic voltmeter is less than 34.30 kV.*

⊠ *R48, R49, HV REG ADJUSTMENT*

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*
3. *Feed in a monoscope pattern from a signal generator, and power supply voltage AC120V.*
4. *Set the user's control R.G.B. RASTER SW to OFF and R.G.B G2 VR (Focus Pack) to minimum.*
5. *Confirm that reading of the high-tension meter is less than 33.30 kV when the power switch is turned on.*

⊠ *R88, R89 O.V.P ADJUSTMENT*

1. *Feed in monoscope pattern from a signal generator and turn the BRIGHT and PICTURE controls for maximum.*
2. *Supply 120V ac to with variable auto-transformer.*
3. *Connect a 470 kΩ variable VR to one side of GB board TP and one side of ground.*



4. *Adjust VR (470kΩ) for +B Line is less than 125V DC, the O.V.P circuit opeates and the raster disappears.*
5. *If the specification is not met, adjust R88, R89 and repeat steps 4 until satisfied.*

⊠ *R23 BEAM CURRENT PROTECTOR ADJUSTMENT*

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC Block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*
3. *Install the tool to the PC-1 connector on the PC board and connect an ammeter.*
4. *Turn PICTURE, BRIGHT and R.G.B. G2 VRs (Focus Pack), and then confirm that protector circuit operates and raster disappears when ABL current is less than 3500 μA.*

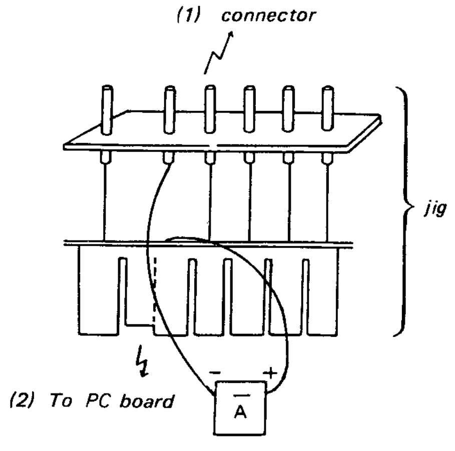
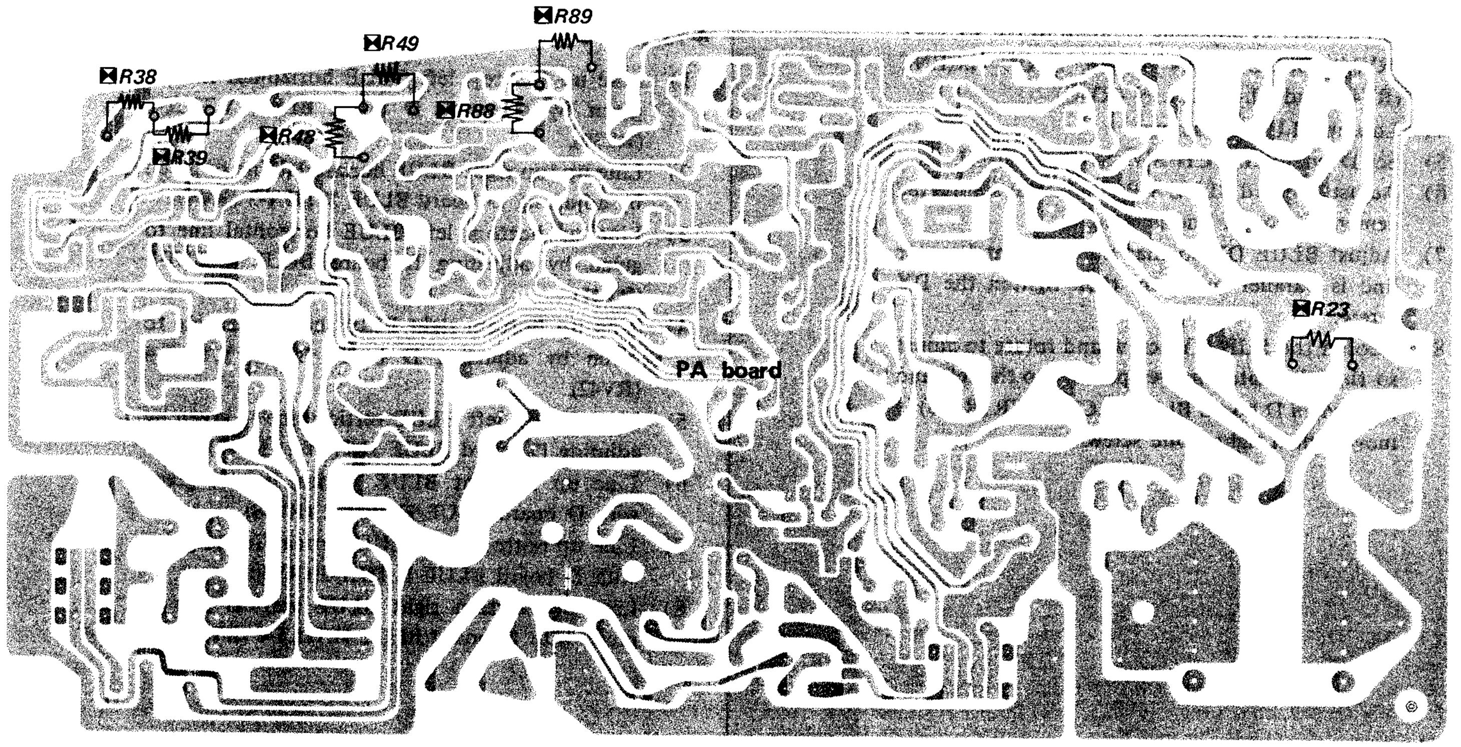
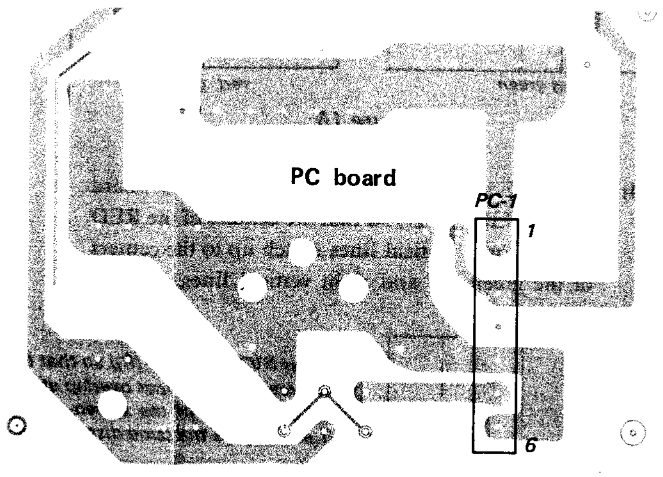
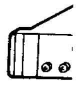


Fig. 2





• CO



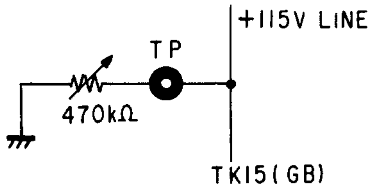
Si

1. Y.

1. I
2. C
3. T
tl
4. I
5. T
tl

◘ *R88, R89 O.V.P ADJUSTMENT*

1. *Feed in monoscope pattern from a signal generator and turn the BRIGHT and PICTURE controls for maximum.*
2. *Supply 120V ac to with variable auto-transformer.*
3. *Connect a 470 kΩ variable VR to one side of GB board TP and one side of ground.*


+115V LINE
TP
470kΩ
TK15(GB)

4. *Adjust VR (470kΩ) for +B Line is less than 125V DC, the O.V.P circuit opeates and the raster disappears.*
5. *If the specification is not met, adjust R88, R89 and repeat steps 4 until satisfied.*

◘ *R23 BEAM CURRENT PROTECTOR ADJUSTMENT*

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC Block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*
3. *Install the tool to the PC-1 connector on the PC board and connect an ammeter.*
4. *Turn PICTURE, BRIGHT and R.G.B. G2 VRs (Focus Pack), and then confirm that protector circuit operates and raster disappears when ABL current is less than 3500 μA.*

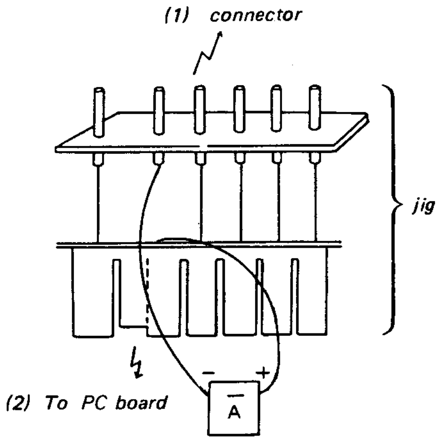
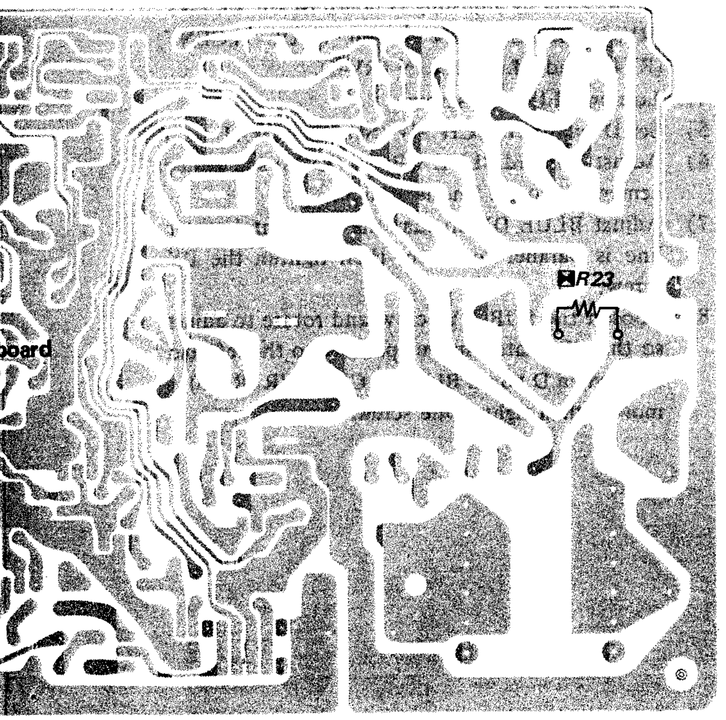
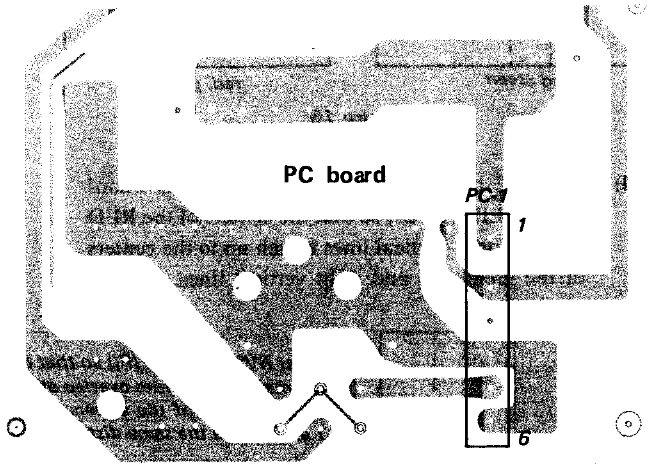

(1) connector
jig
(2) To PC board
− +
A

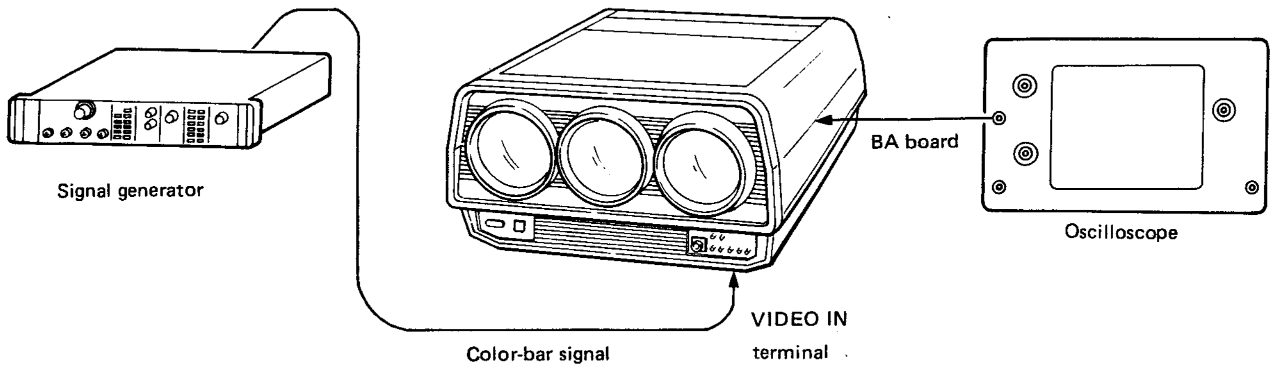
Fig. 2




PC board
PC-1
1
6

SECTION 6
CIRCUIT ADJUSTMENTS

• CONNECTION


Signal generator
BA board
Oscilloscope
VIDEO IN
terminal
Color-bar signal

1. Y.TRAP

1. Input a PAL color bar.
2. Observe TP5 (TRAP) on the oscilloscope.
3. Turn T103 (4.43 MHz TRAP) core and adjust so that the 4.43 MHz carrier component is minimum.
4. Input a SECAM color bar.
5. Turn T102 (4.25 MHz TRAP) core and adjust so that the 4.25 MHz carrier component is minimum.

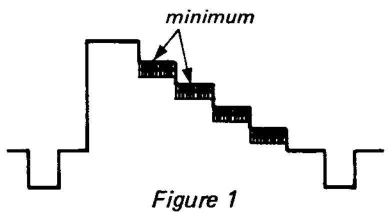
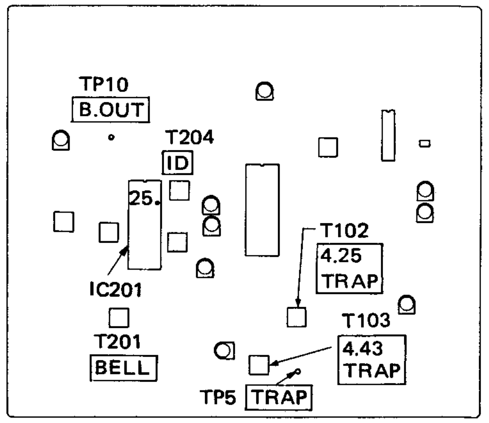


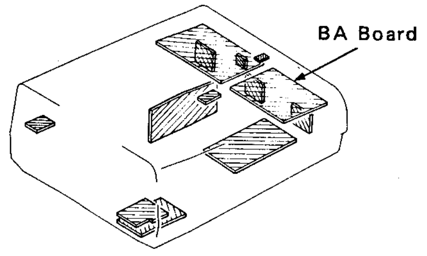
Figure 1

2. SECAM COLOR

2. Turn T204 (ID) core so that IC201 pin 25 DC level is maximum.
3. While observing the blue output TP10 (B.OUT) waveform, adjust T201 (BELL FILTER) so that the output waveform peak portions are flat. (Figure 2)

BA BOARD


TP10
B.OUT
T204
ID
25
IC201
T201
BELL
T102
4.25
TRAP
T103
4.43
TRAP
TP5
TRAP



4. DISCRI Adjustment
   1. (1) Adjust T203 (B-Y DISCRI) so that the blue output waveform valleys are the same level.
   2. (2) Adjust T202 (R-Y DISCRI) so that red output TP8 (R.OUT) waveform valleys are the same level. (Figure 2)
   3. (3) After completing (1) and (2), fine adjust so that color components do not appear in the color bar black portion and white portion.

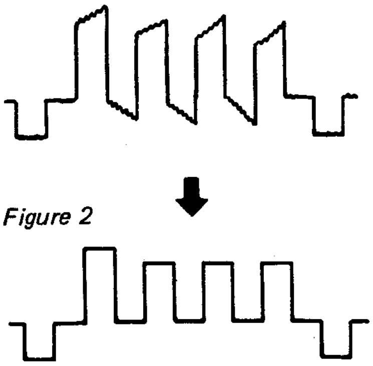


Figure 2

3. 1H COMB ADJUSTMENT

1. Input an NTSC color bar.
2. Observe TP5 (TRAP) on the oscilloscope.
3. White tracking with BA board T401 and RV403, adjust the 3.58 MHz carrier component so that it is minimum.

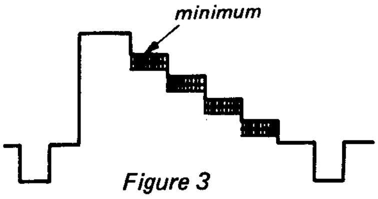


Figure 3

4. COLOR ADJUSTMENT

1. Input a SECAM color bar.
2. Set the COLOR VR to center.
3. Adjsut RV111 (SECAM SUB COLOR) so that blue output TP10 (B.OUT) is as shown in Figure 4.
4. Input a PAL color bar and adjust RV108 (PAL SUB COLOR) so that blue output is as shown in Figure 4. COLOR VR center=6V DC

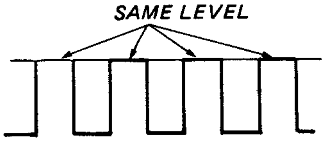


Figure 4

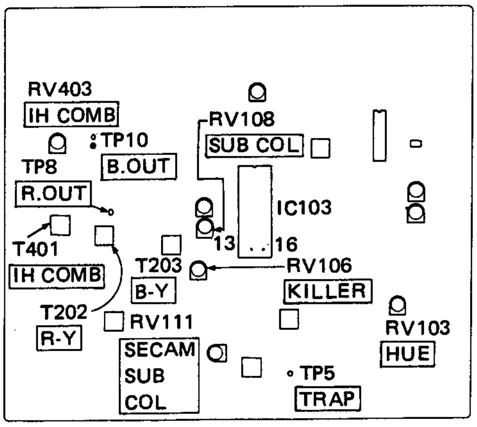
5. KILLER ADJUSTMENT

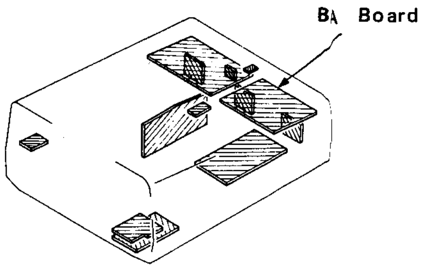
1. Receive a NTSC monochrome signal and turn on the power switch.
2. Connect an electrolytic capacitor (10 μF/16V) as shown, then barst signal cut.
3. Adjust RV106 for voltage value of IC103 pin ⑬ is 8.0±0.1Vdc.

6. HUE CENTER

1. Input a Color Pattern (SPCB).
2. Set COLOR VR to center.
3. Turn RV103 (HUE CENT) so that blue output and red output ANTI-PAL signals stop. At this time, confirm th that there is almost no color in the picture ANTI-PAL signal portion.
4. Input an NTSC color bar, turn the HUE VR and confirm HUE optimum position and that there is sufficient HUE variable range.

BA BOARD





7. PAL COLOR SYNC FINE ADJSUTMENT

1. Input a PAL color bar.
2. Connect 100 kΩ resistor between IC103 pin ⑬ and ground and release killer.
3. Connect 10 μF/16V electrolytic capacitor between IC103 pin ⑯ and ground and cut the burst signal.
4. Connect IC104 pin ② to the +12V line via a 2.2 kΩ resistor and get 4.43 MHz mode.
5. Adjust RV104 so that the blue output waveforms are both as shown in Figure 5.

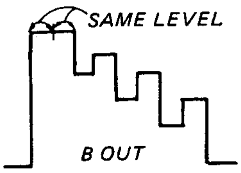


Figure 5

8. PAL COLOR SYNC ADJUSTMENT

1. Input a PAL color bar.
2. Connect 100 kΩ resistor between IC103 pin ⑬ and ground and release killer.
3. Connect 10 μF/16V electrolytic capacitor between IC103 pin ⑯ and ground and cut the burst signal.
4. Connect IC104 pin ② to the +12V line via a 2.2 kΩ resistor and get 4.43 MHz mode.
5. Adjust RV104 (APC-2 4.43 MHz) to get color sync.
6. Remove the 2.2 kΩ resistor in step 4.
7. Input an NTSC color bar.
8. Ground Q144 base momentarily and get 3.58 MHz mode.
   (Repeat two or three times if it does not change the first time.)
9. Adjust RV105 (APC-1 3.58 MHz) to get color sync.

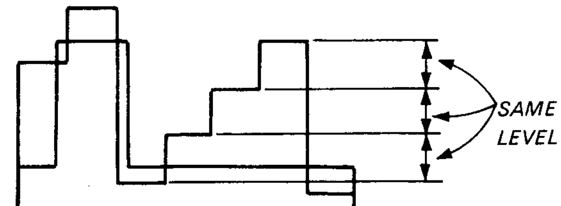


Figure 6

9. SUB PIC ADJUSTMENT

1. Input a PAL color bar.
2. Set COLOR VR to minimum.
3. Adjust RV107 (SUB PIC) so that the blue output TP10 (B.OUT) is 0.85±0.05Vp-p. from the pedestal level.

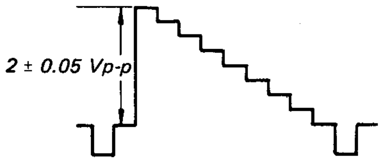


Figure 7

10. PAL MATRIX

1. Input a PAL color bar.
2. Observe blue output TP10 (B.OUT) and red output TP8 (R.OUT) waveforms.
3. Set COLOR VR to center.
4. While tracking with T104 (DAT) and RV110 (DELAY ADJ VR), adjust so that blue output TP10 (B.OUT) and red output TP8 (R.OUT) waveforms are both as shown in Figure 8.
5. Fine adjust ANTI-PAL after completing the adjustment.

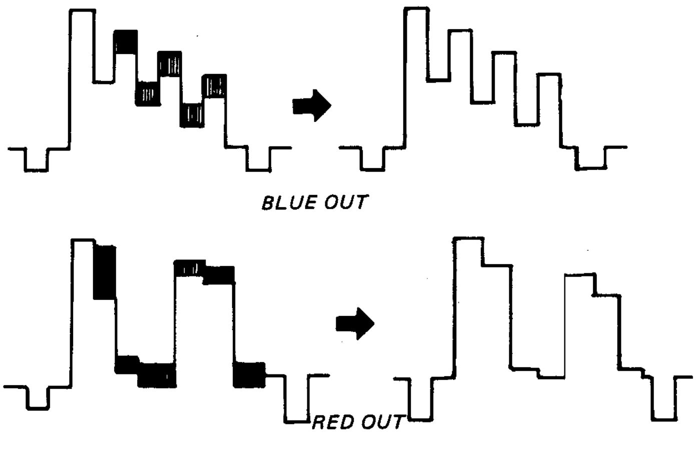
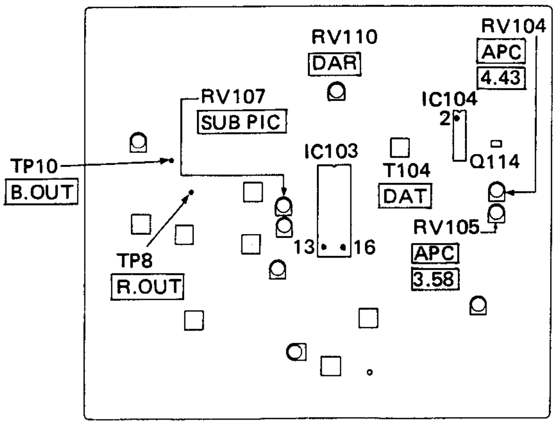
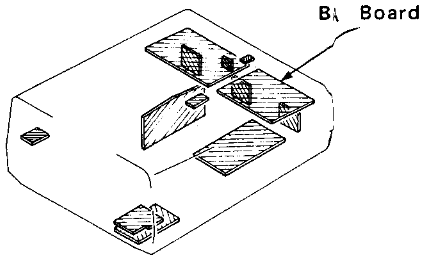


Figure 8

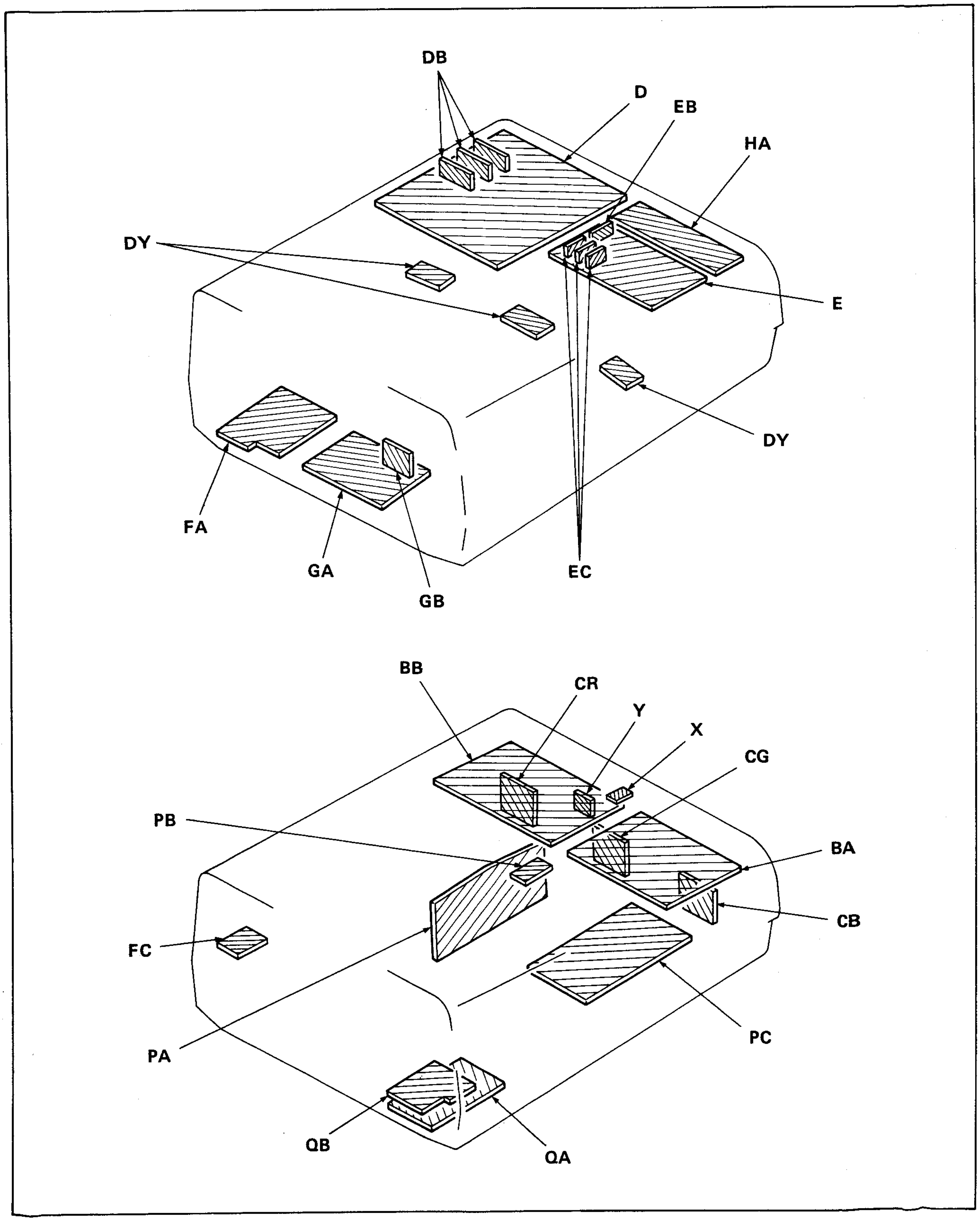
BA BOARD





SECTION 7
DIAGRAMS

7-1. CIRCUIT BOARDS LOCATION


DB
D
EB
HA
DY
E
DY
FA
GA
GB
EC
BB
CR
Y
X
CG
PB
BA
CB
FC
PC
PA
QB
QA

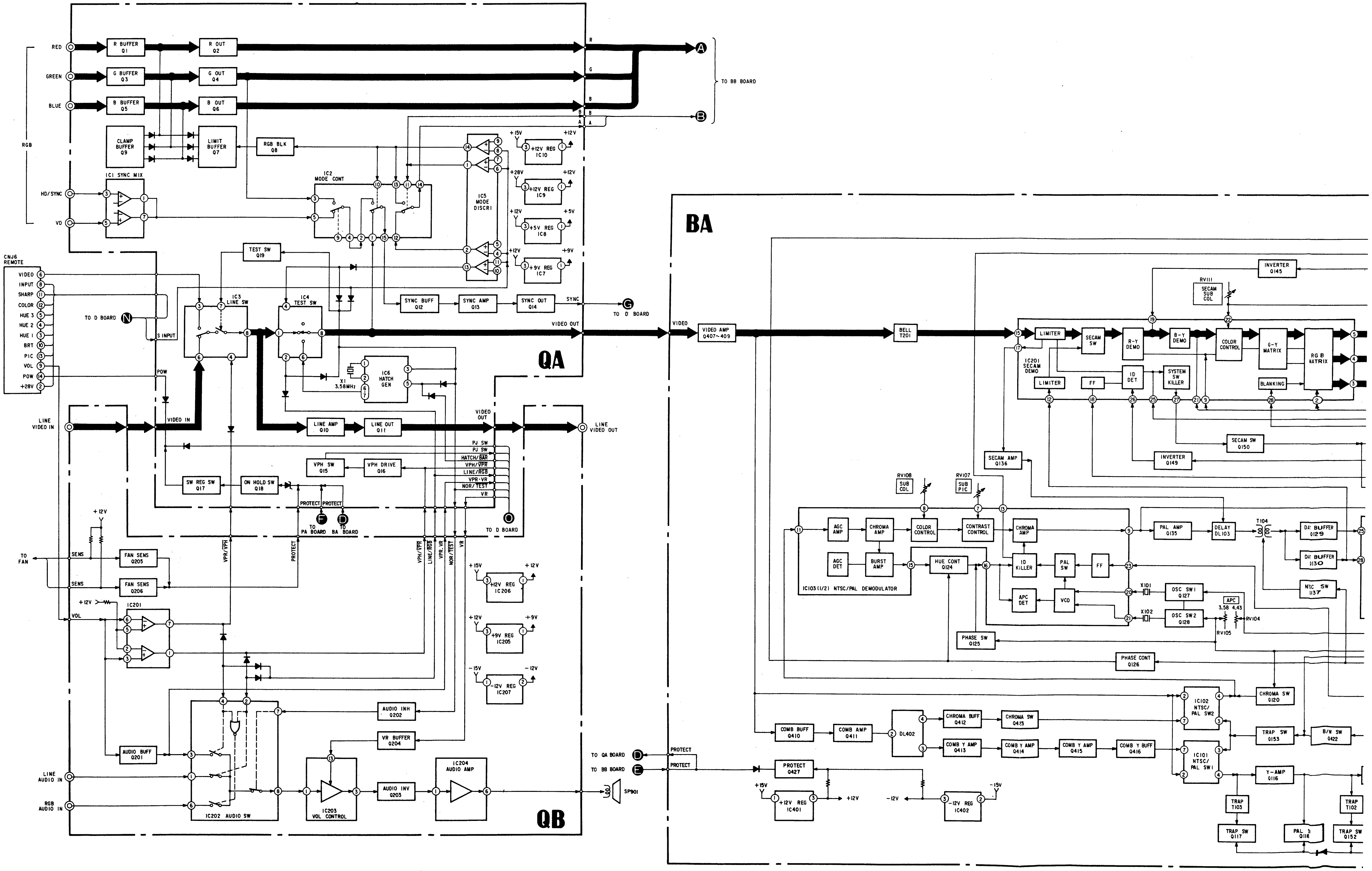
7-2. QUICK REFERENCE

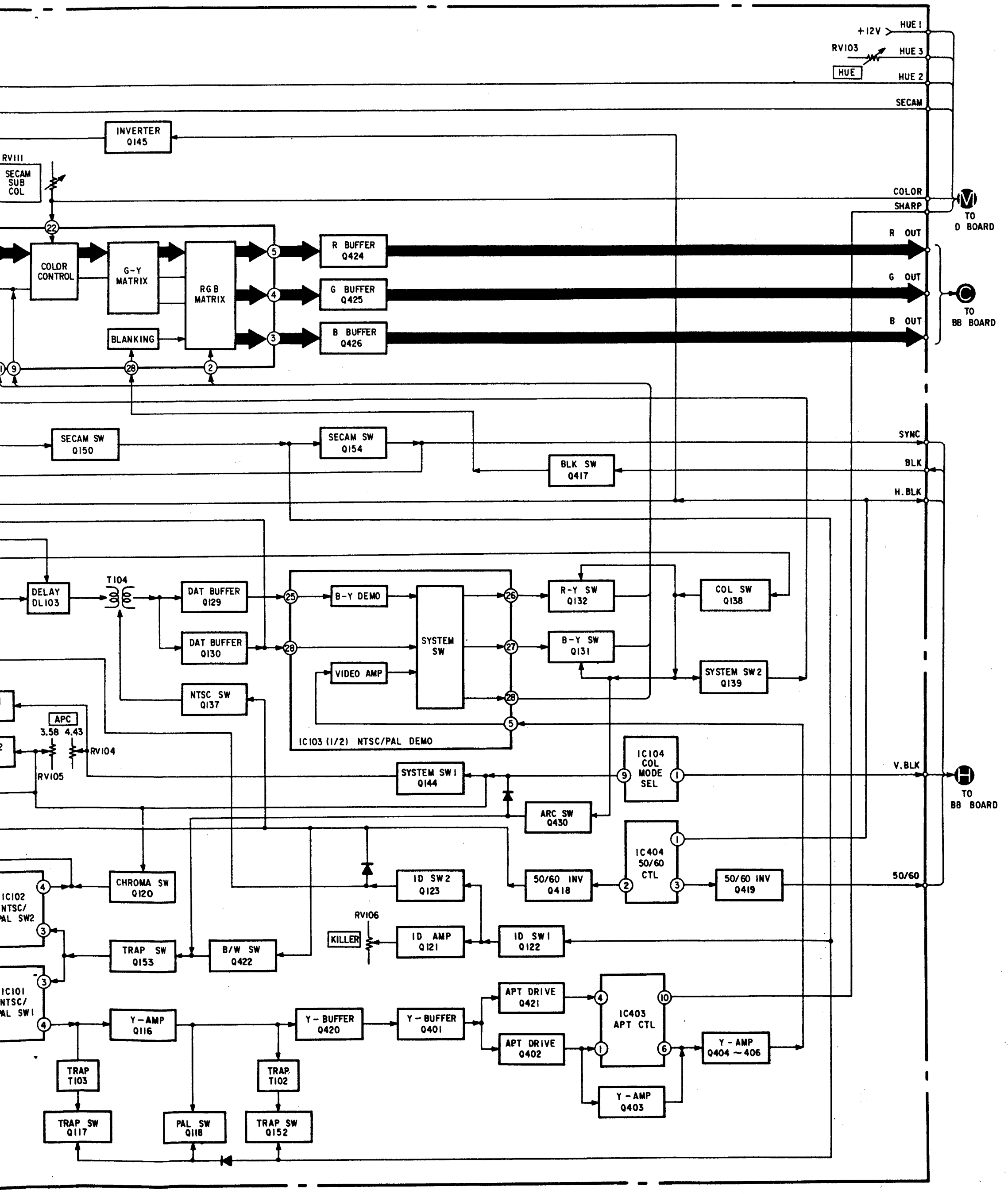
SECTION \ BOARD	BA	BB	CB	CG	CR	D	DB	DY	E	EB	EC
CIRCUIT DESCRIPTION	–	–	–	–	–	–	–	–	–	–	–
ADJUSTMENTS	40	–	–	–	–	–	–	–	–	–	–
BLOCK DIAGRAM	46	53	55	55	55	50	52	–	49	49	49
MOUNTING DIAGRAM	75	80	98	97	96	87	88	98	95	96	97
SCHEMATIC DIAGRAM	72	77	94	94	94	83	86	94	91	91	91
ELECTRICAL PARTS LIST	118	115	131	130	129	131	137	137	137	138	139

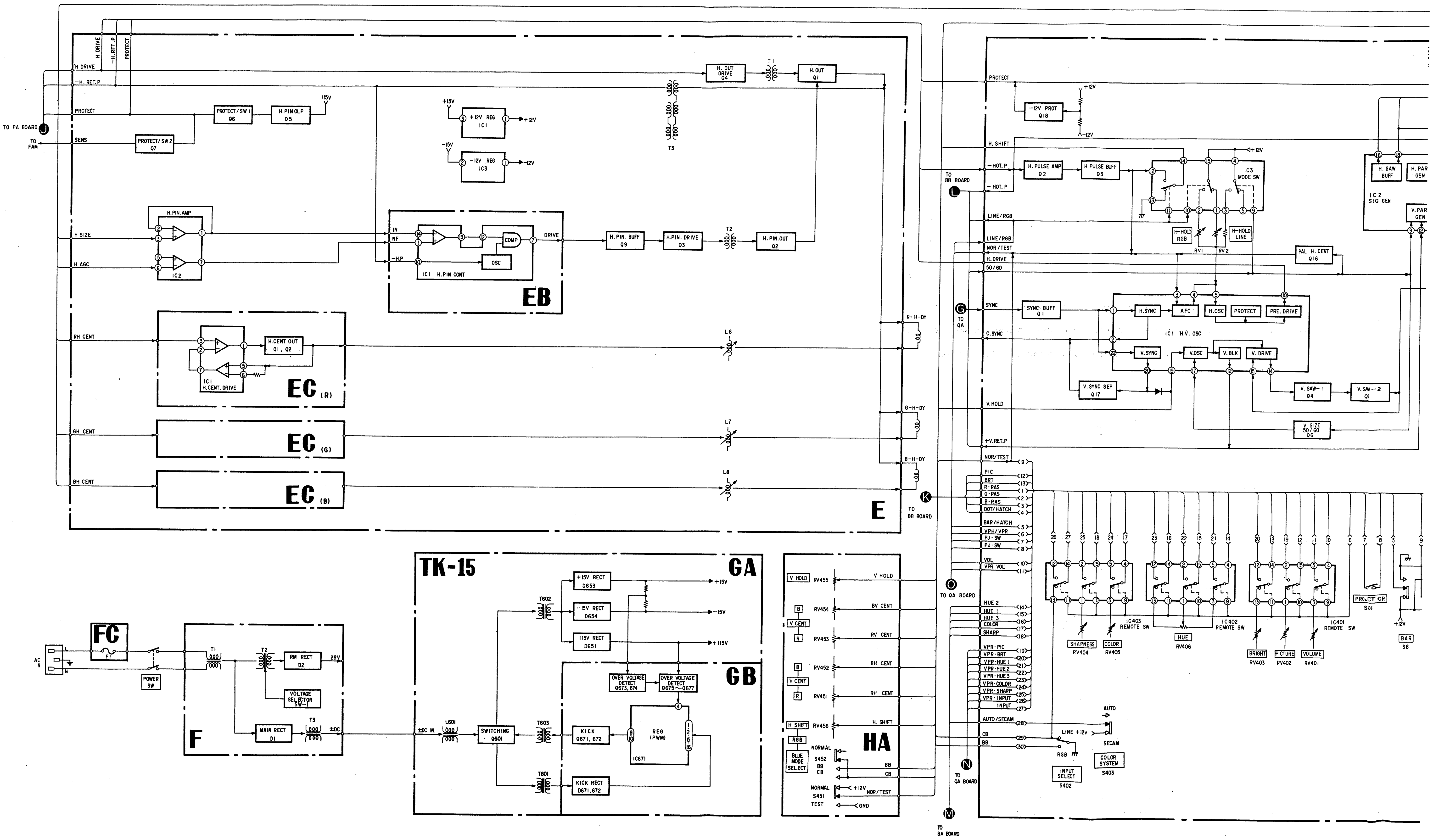
SECTION \ BOARD	F	FA	FC	GA	GB	HA	PA	PB	PC	QA	QB
CIRCUIT DESCRIPTION	–	–	–	–	–	–	–	32	–	–	–
ADJUSTMENTS	–	–	–	–	–	–	38	–	39	–	–
BLOCK DIAGRAM	49	–	49	49	49	50	54	54	55	45	45
MOUNTING DIAGRAM	–	71	71	–	–	88	100	98	98	69	70
SCHEMATIC DIAGRAM	–	65	65	65	66	83	92	92	93	66	65
ELECTRICAL PARTS LIST	–	125	126	140	140	139	122	125	125	126	128

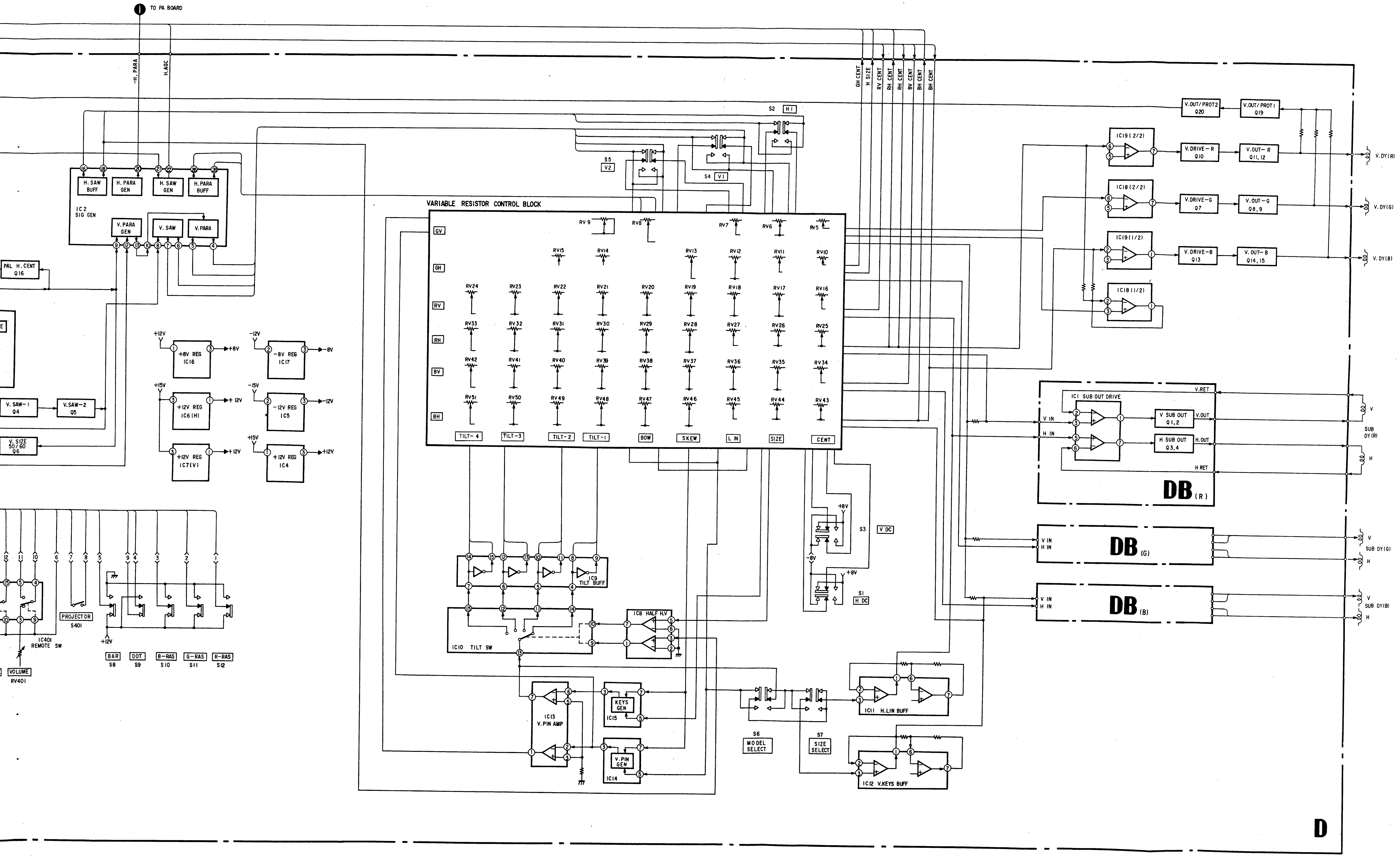
SECTION \ BOARD	X	Y
CIRCUIT DESCRIPTION	–	–
ADJUSTMENTS	–	–
BLOCK DIAGRAM	–	55
MOUNTING DIAGRAM	89	99
SCHEMATIC DIAGRAM	83	93
ELECTRICAL PARTS LIST	139	139

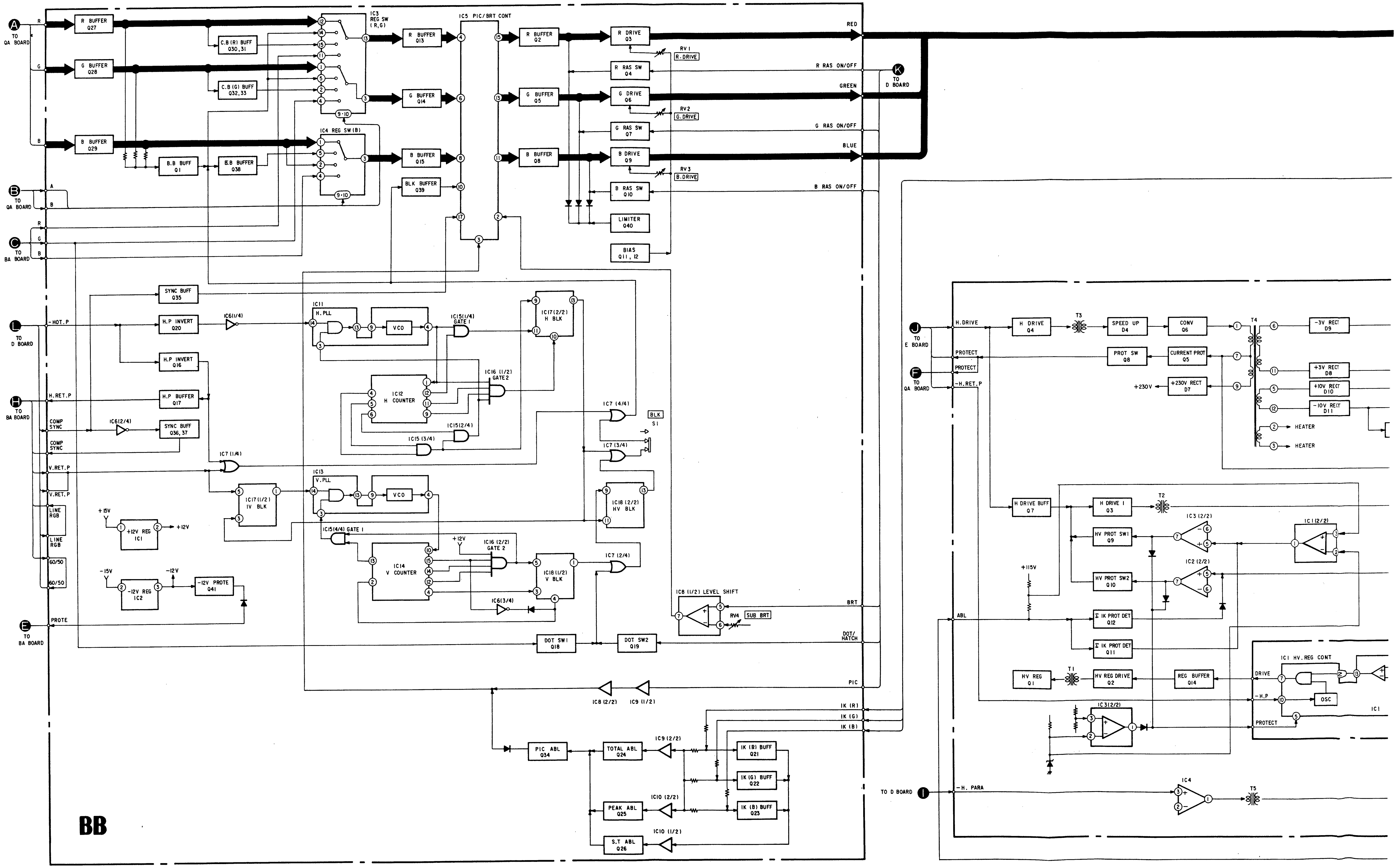
7-3. BLOCK DIAGRAMS

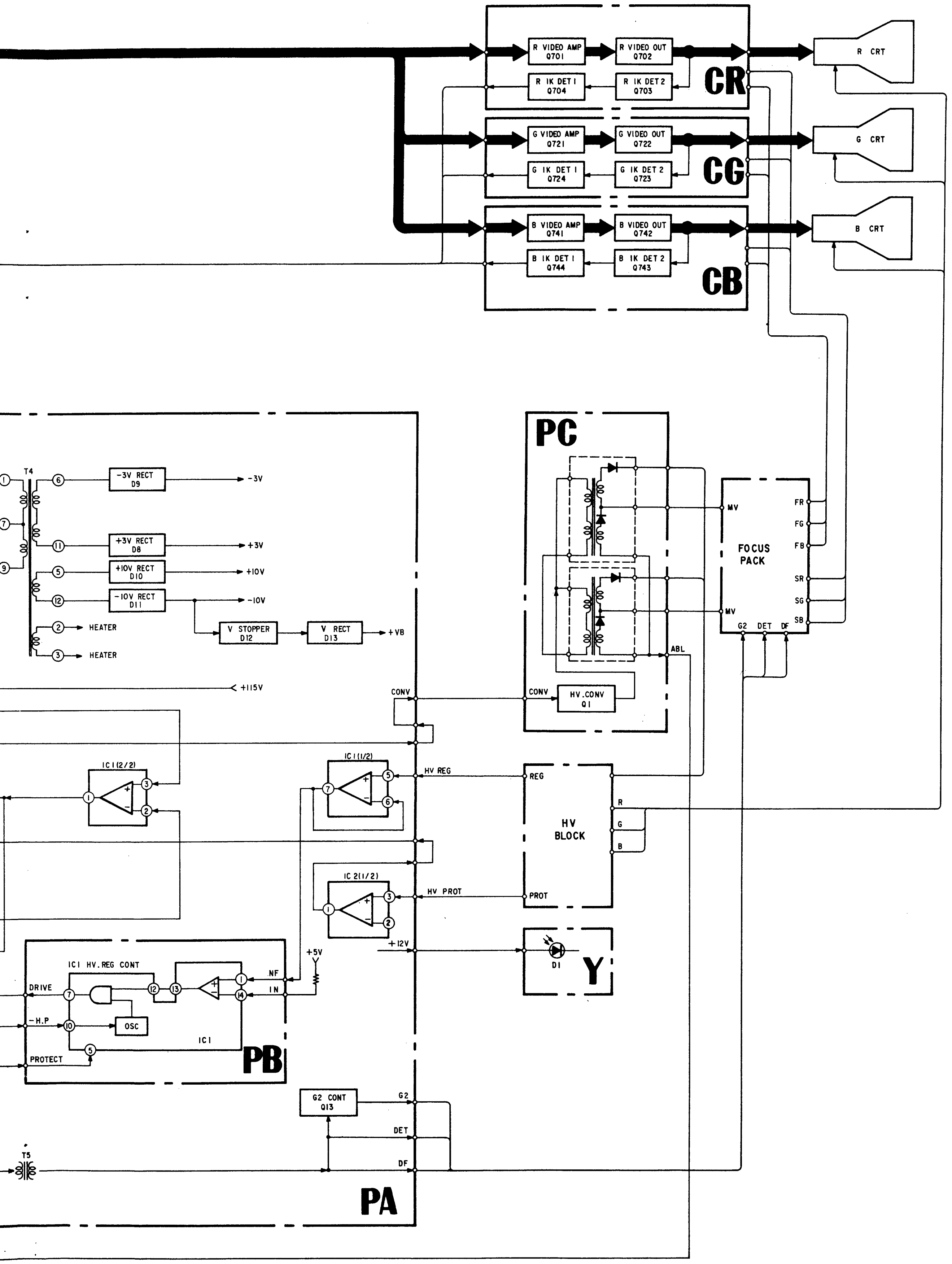

QA
QB
BA
RED
GREEN
BLUE
RGB
HD/SYNC
VD
R BUFFER Q1
G BUFFER Q3
B BUFFER Q5
R OUT Q2
G OUT Q4
B OUT Q6
CLAMP BUFFER Q9
LIMIT BUFFER Q7
RGB BLK Q8
IC1 SYNC MIX
IC2 MODE CONT
IC5 MODE DISCRI
+12V REG IC10
+12V REG IC9
+5V REG IC8
+9V REG IC7
TO BB BOARD
TEST SW Q19
SYNC BUFF Q12
SYNC AMP Q13
SYNC OUT Q14
SYNC
TO D BOARD
CNJ6 REMOTE
VIDEO
INPUT
SHARP
COLOR
HUE 3
HUE 2
HUE 1
BRT
PIC
VOL
POW
+28V
S INPUT
IC3 LINE SW
IC4 TEST SW
VIDEO OUT
X1 3.58MHz
IC6 HATCH GEN
POW
LINE VIDEO IN
VIDEO IN
LINE AMP Q10
LINE OUT Q11
VIDEO OUT
LINE VIDEO OUT
PJ SW
HATCH/BAR
VPH/VPR
LINE/RGB
VPR-VR
NOR/TEST
VR
VPH SW Q15
VPH DRIVE Q16
SW REG SW Q17
ON HOLD SW Q18
PROTECT
TO PA BOARD
TO BA BOARD
TO FAN
SENS
FAN SENS Q205
FAN SENS Q206
+12V REG IC206
+9V REG IC205
-12V REG IC207
IC201
VOL
AUDIO INH Q202
VR BUFFER Q204
AUDIO BUFF Q201
LINE AUDIO IN
RGB AUDIO IN
IC202 AUDIO SW
IC203 VOL CONTROL
AUDIO INV Q203
IC204 AUDIO AMP
SP901
TO QA BOARD
TO BB BOARD
VIDEO AMP Q407~409
BELL T201
INVERTER Q145
RV111 SECAM SUB COL
LIMITER
SECAM SW
R-Y DEMO
B-Y DEMO
COLOR CONTROL
G-Y MATRIX
RGB MATRIX
IC201 SECAM DEMO
FF
ID DET
SYSTEM SW KILLER
BLANKING
SECAM AMP Q136
SECAM SW Q150
INVERTER Q149
RV108 SUB COL
RV107 SUB PIC
AGC AMP
CHROMA AMP
COLOR CONTROL
CONTRAST CONTROL
AGC DET
BURST AMP
HUE CONT Q124
ID KILLER
PAL SW
APC DET
VCO
IC103(1/2) NTSC/PAL DEMODULATOR
PAL AMP Q135
DELAY DL103
T104
DL BUFFER Q129
DL BUFFER Q130
NTSC SW Q137
X101
X102
OSC SW1 Q127
OSC SW2 Q128
APC
3.58 4.43
RV104
RV105
PHASE SW Q125
PHASE CONT Q126
CHROMA SW Q120
IC102 NTSC/PAL SW2
IC101 NTSC/PAL SW1
COMB BUFF Q410
COMB AMP Q411
DL402
CHROMA BUFF Q412
CHROMA SW Q413
COMB Y AMP Q413
COMB Y AMP Q414
COMB Y AMP Q415
COMB Y BUFF Q416
TRAP SW Q153
B/W SW Q422
Y-AMP Q116
PROTECT Q427
+12V REG IC401
-12V REG IC402
TRAP T103
TRAP T102
TRAP SW Q117
PAL SW Q118
TRAP SW Q152


HUE 1
+12V
RV103
HUE
HUE 3
HUE 2
SECAM
INVERTER Q145
RV111
SECAM SUB COL
COLOR
SHARP
TO D BOARD
COLOR CONTROL
G-Y MATRIX
RGB MATRIX
BLANKING
R BUFFER Q424
G BUFFER Q425
B BUFFER Q426
R OUT
G OUT
B OUT
TO BB BOARD
SECAM SW Q150
SECAM SW Q154
SYNC
BLK SW Q417
BLK
H.BLK
DELAY DL103
T104
DAT BUFFER Q129
DAT BUFFER Q130
B-Y DEMO
SYSTEM SW
VIDEO AMP
R-Y SW Q132
B-Y SW Q131
COL SW Q138
SYSTEM SW2 Q139
NTSC SW Q137
IC103 (1/2) NTSC/PAL DEMO
APC
3.58 4.43
RV104
RV105
SYSTEM SW1 Q144
IC104 COL MODE SEL
V.BLK
TO BB BOARD
ARC SW Q430
IC404 50/60 CTL
CHROMA SW Q120
ID SW2 Q123
50/60 INV Q418
50/60 INV Q419
50/60
IC102 NTSC/ PAL SW2
RV106
KILLER
ID AMP Q121
ID SW1 Q122
TRAP SW Q153
B/W SW Q422
IC101 NTSC/ PAL SW1
Y-AMP Q116
Y-BUFFER Q420
Y-BUFFER Q401
APT DRIVE Q421
APT DRIVE Q402
IC403 APT CTL
Y-AMP Q404 ~ 406
Y-AMP Q403
TRAP T103
TRAP T102
TRAP SW Q117
PAL SW Q118
TRAP SW Q152

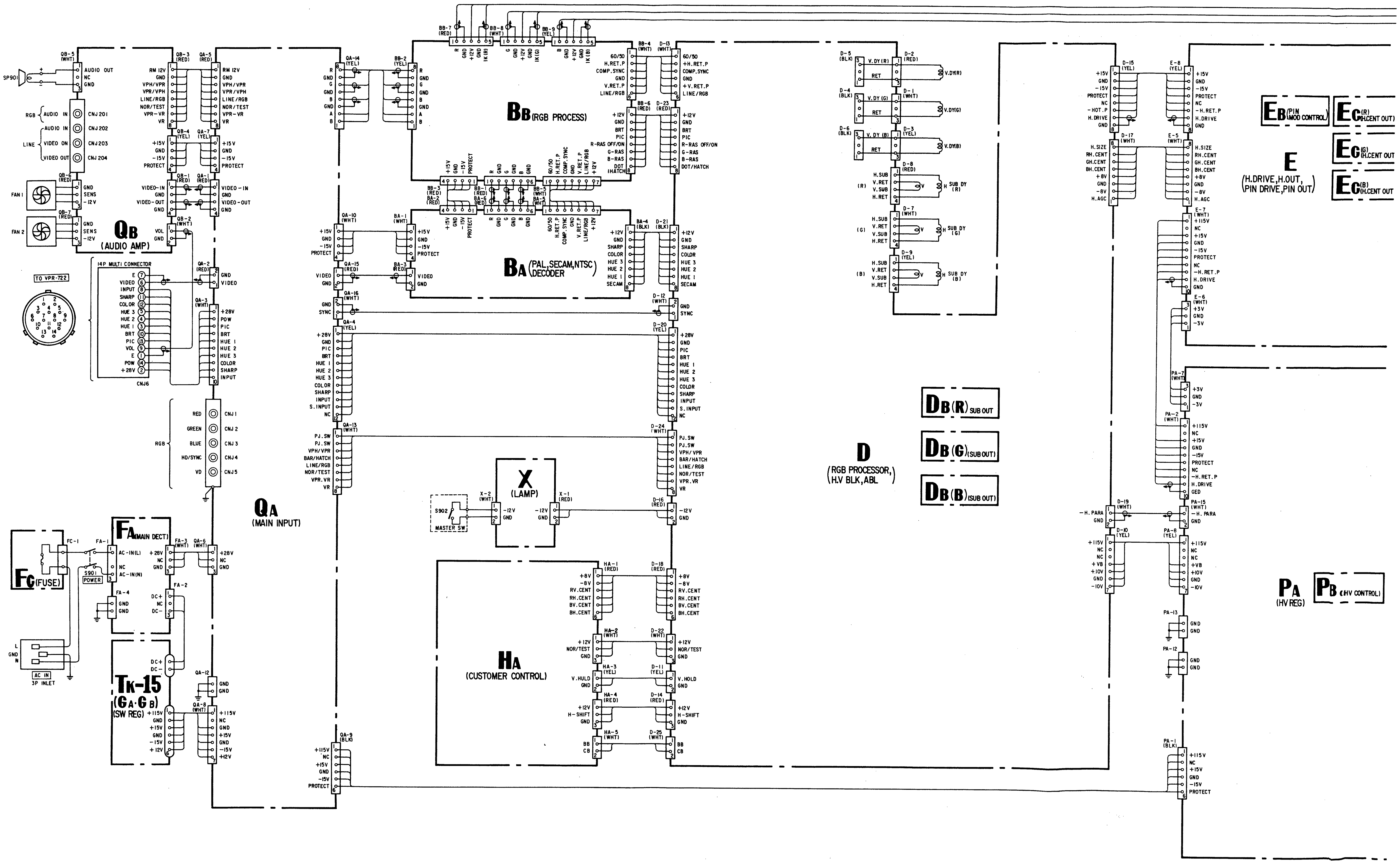

E
EB
EC (R)
EC (G)
EC (B)
FC
F
TK-15
GA
GB
HA
TO PA BOARD
TO FAM
H DRIVE
-H. RET. P
PROTECT
SENS
PROTECT/SW 1 Q6
H.PIN OLP Q5
PROTECT/SW 2 Q7
+12V REG IC1
-12V REG IC3
H.OUT DRIVE Q4
H.OUT Q1
T1
T2
T3
H.PIN. AMP
H SIZE
H AGC
IC2
IC1 H.PIN CONT
COMP
OSC
DRIVE
H.PIN. BUFF Q9
H.PIN. DRIVE Q3
H.PIN.OUT Q2
RH CENT
GH CENT
BH CENT
H.CENT OUT Q1, Q2
IC1 H.CENT. DRIVE
L6
L7
L8
R-H-DY
G-H-DY
B-H-DY
AC IN
POWER SW
VOLTAGE SELECTOR SW-1
RM RECT D2
MAIN RECT D1
28V
±DC
±DC IN
L601
SWITCHING Q601
T601
T602
T603
+15V RECT D653
-15V RECT D654
115V RECT D651
+15V
-15V
+115V
OVER VOLTAGE DETECT Q673, 674
OVER VOLTAGE DETECT Q675~Q677
KICK Q671, 672
REG (PWM) IC671
KICK RECT D671, 672
V HOLD RV455
V CENT
BV CENT RV454
RV CENT RV453
H CENT
BH CENT RV452
RH CENT RV451
H SHIFT RV456
RGB
BLUE MODE SELECT
NORMAL S452 BB CB
NORMAL S451 TEST
+12V NOR/TEST
GND
TO QA BOARD
TO BB BOARD
TO BA BOARD
TO QA
-12V PROT Q18
H. SHIFT
-HOT. P
H. PULSE AMP Q2
H PULSE BUFF Q3
IC3 MODE SW
H-HOLD RGB
H-HOLD LINE
RV1
RV2
LINE/RGB
NOR/TEST
H. DRIVE
50/60
PAL H. CENT Q16
SYNC
SYNC BUFF Q1
C.SYNC
IC1 H.V. OSC
H.SYNC
AFC
H.OSC
PROTECT
PRE. DRIVE
V. SYNC
V.OSC
V. BLK
V. DRIVE
V.SYNC SEP Q17
V. SAW-1 Q4
V. SAW-2
V.HOLD
+V.RET.P
V. SIZE 50/60 Q6
H. SAW BUFF
H. PAR GEN
V. PAR GEN
IC2 SIG GEN
PIC
BRT
R-RAS
G-RAS
B-RAS
DOT/HATCH
BAR/HATCH
VPH/VPR
PJ-SW
VOL
VPR VOL
HUE 2
HUE 1
HUE 3
COLOR
SHARP
VPR-PIC
VPR-BRT
VPR-HUE 1
VPR-HUE 2
VPR-HUE 3
VPR-COLOR
VPR-SHARP
VPR-INPUT
INPUT
AUTO/SECAM
CB
BB
IC403 REMOTE SW
IC402 REMOTE SW
IC401 REMOTE SW
SHAPNESS RV404
COLOR RV405
HUE RV406
BRIGHT RV403
PICTURE RV402
VOLUME RV401
PROJECTOR S01
BAR S8
AUTO
SECAM
LINE +12V
RGB
INPUT SELECT S402
COLOR SYSTEM S403

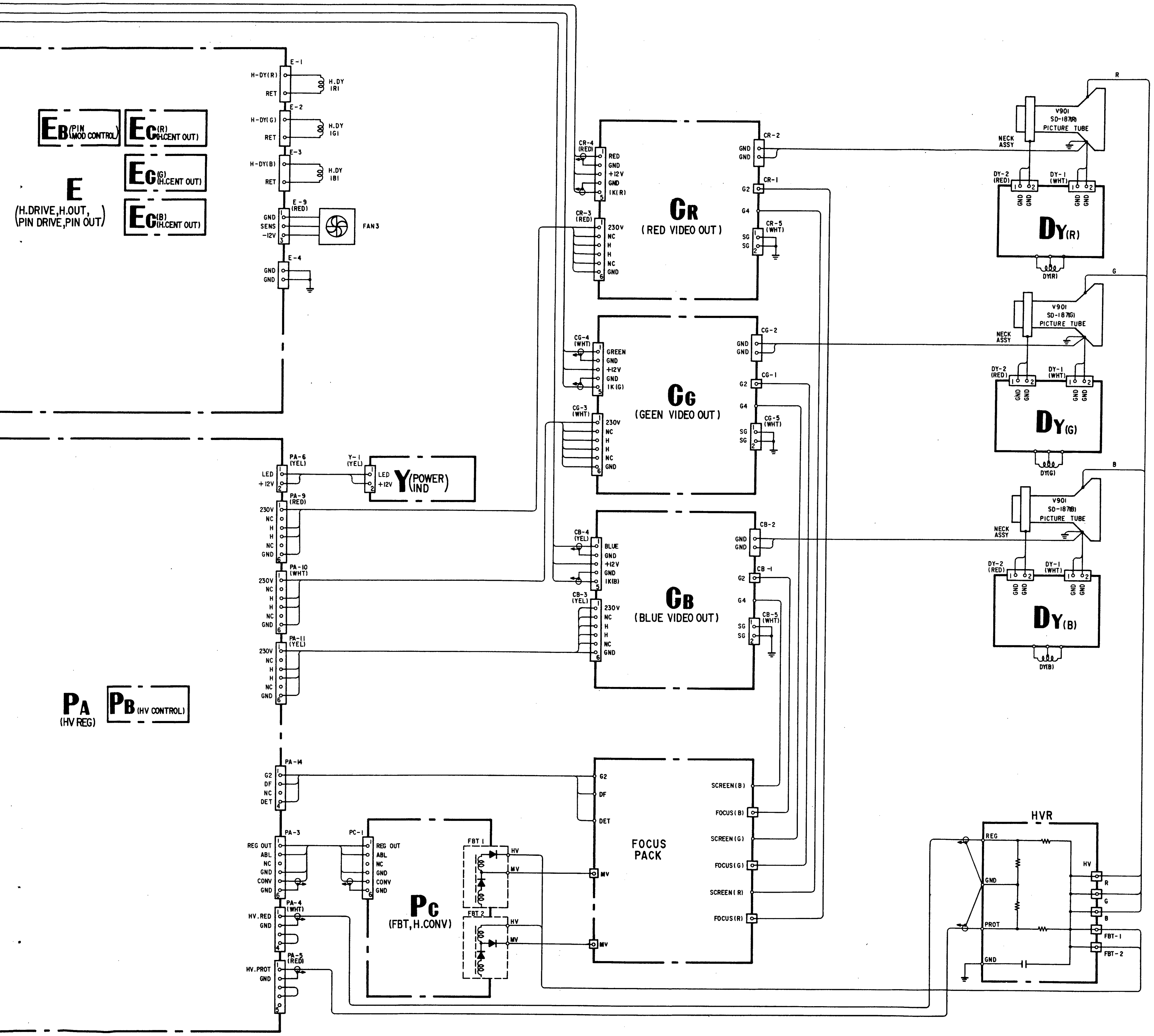

TO PA BOARD
H. PARA
H. AGC
GH CENT
H SIZE
RV CENT
RH CENT
RH CENT
BV CENT
BH CENT
BH CENT
S2 H1
S5 V2
S4 V1
H. SAW BUFF
H. PARA GEN
H. SAW GEN
H. PARA BUFF
IC2 SIG GEN
V. PARA GEN
V. SAW
V. PARA
PAL H. CENT Q16
V. SAW-1 Q4
V. SAW-2 Q5
V. SIZE 50/60 Q6
+12V
+8V REG IC16
+8V
-12V
-8V REG IC17
-8V
+15V
+12V REG IC6(H)
+12V
-15V
-12V REG IC5
-12V
+12V REG IC7(V)
+15V
+12V REG IC4
VARIABLE RESISTOR CONTROL BLOCK
GV
GH
RV
RH
BV
BH
RV9
RV8
RV7
RV6
RV5
RV15
RV14
RV13
RV12
RV11
RV10
RV24
RV23
RV22
RV21
RV20
RV19
RV18
RV17
RV16
RV33
RV32
RV31
RV30
RV29
RV28
RV27
RV26
RV25
RV42
RV41
RV40
RV39
RV38
RV37
RV36
RV35
RV34
RV51
RV50
RV49
RV48
RV47
RV46
RV45
RV44
RV43
TILT-4
TILT-3
TILT-2
TILT-1
BOW
SKEW
L IN
SIZE
CENT
IC9 TILT BUFF
IC8 HALF H.V
IC10 TILT SW
IC13 V.PIN AMP
KEYS GEN
IC15
V.PIN GEN
IC14
S6 MODEL SELECT
S7 SIZE SELECT
IC11 H.LIN BUFF
IC12 V.KEYS BUFF
S3 V DC
S1 H DC
+8V
-8V
PROJECTOR S401
IC401 REMOTE SW
VOLUME RV401
+12V
BAR S8
DOT S9
B-RAS S10
G-RAS S11
R-RAS S12
V.OUT/PROT2 Q20
V.OUT/PROT1 Q19
IC19(2/2)
V.DRIVE-R Q10
V.OUT-R Q11,12
V.DY(R)
IC18(2/2)
V.DRIVE-G Q7
V.OUT-G Q8,9
V.DY(G)
IC19(1/2)
V.DRIVE-B Q13
V.OUT-B Q14,15
V.DY(B)
IC18(1/2)
IC1 SUB OUT DRIVE
V.RET
V IN
H IN
V SUB OUT Q1,2
V.OUT
H SUB OUT Q3,4
H.OUT
H RET
V
SUB DY(R)
H
DB(R)
V IN
H IN
DB(G)
V
SUB DY(G)
H
V IN
H IN
DB(B)
V
SUB DY(B)
H
D


TO QA BOARD
R BUFFER Q27
G BUFFER Q28
B BUFFER Q29
C.B (R) BUFF Q30, 31
C.B (G) BUFF Q32, 33
B.B BUFF Q1
B.B BUFFER Q38
IC3 REG SW (R, G)
IC4 REG SW (B)
R BUFFER Q13
G BUFFER Q14
B BUFFER Q15
BLK BUFFER Q39
IC5 PIC/BRT CONT
R BUFFER Q2
G BUFFER Q5
B BUFFER Q8
R DRIVE Q3
G DRIVE Q6
B DRIVE Q9
RV1 R.DRIVE
RV2 G.DRIVE
RV3 B.DRIVE
R RAS SW Q4
G RAS SW Q7
B RAS SW Q10
LIMITER Q40
BIAS Q11, 12
RED
R RAS ON/OFF
GREEN
G RAS ON/OFF
BLUE
B RAS ON/OFF
TO D BOARD
TO BA BOARD
-HOT.P
TO D BOARD
SYNC BUFF Q35
H.P INVERT Q20
H.P INVERT Q16
H.P BUFFER Q17
SYNC BUFF Q36, 37
IC6 (1/4)
IC6 (2/4)
IC11 H. PLL
VCO
IC15 (1/4) GATE 1
IC17 (2/2) H BLK
IC12 H COUNTER
IC16 (1/2) GATE 2
IC15 (3/4)
IC15 (2/4)
IC7 (4/4)
BLK
S1
IC7 (3/4)
IC7 (1/4)
IC17 (1/2) IV BLK
IC13 V. PLL
IC18 (2/2) HV BLK
IC15 (4/4) GATE 1
IC14 V COUNTER
IC16 (2/2) GATE 2
IC18 (1/2) V BLK
IC7 (2/4)
IC6 (3/4)
H.RET.P
COMP SYNC
COMP SYNC
V.RET.P
V.RET.P
LINE RGB
LINE RGB
60/50
60/50
+15V
+12V REG IC1
+12V
-15V
-12V REG IC2
-12V
-12V PROTE Q41
PROTE
TO BA BOARD
IC8 (1/2) LEVEL SHIFT
RV4 SUB BRT
BRT
DOT SW1 Q18
DOT SW2 Q19
DOT/HATCH
PIC
IC8 (2/2)
IC9 (1/2)
IK (R)
IK (G)
IK (B)
PIC ABL Q34
TOTAL ABL Q24
IC9 (2/2)
IK (B) BUFF Q21
IK (G) BUFF Q22
IK (B) BUFF Q23
PEAK ABL Q25
IC10 (2/2)
S.T ABL Q26
IC10 (1/2)
+12V
BB
TO E BOARD
TO QA BOARD
H.DRIVE
PROTECT
PROTECT
-H.RET.P
H DRIVE Q4
T3
SPEED UP D4
CONV Q6
T4
-3V RECT D9
PROT SW Q8
CURRENT PROT Q5
+3V RECT D8
+230V
+230V RECT D7
+10V RECT D10
-10V RECT D11
HEATER
HEATER
H DRIVE BUFF Q7
H DRIVE 1 Q3
T2
HV PROT SW1 Q9
IC3 (2/2)
IC1 (2/2)
HV PROT SW2 Q10
IC2 (2/2)
+115V
ABL
Σ IK PROT DET Q12
Σ IK PROT DET Q11
HV REG Q1
T1
HV REG DRIVE Q2
REG BUFFER Q14
IC1 HV. REG CONT
DRIVE
-H.P
OSC
PROTECT
IC1
IC3 (2/2)
TO D BOARD
-H. PARA
IC4
T5


R VIDEO AMP Q701
R VIDEO OUT Q702
R IK DET 1 Q704
R IK DET 2 Q703
CR
R CRT
G VIDEO AMP Q721
G VIDEO OUT Q722
G IK DET 1 Q724
G IK DET 2 Q723
CG
G CRT
B VIDEO AMP Q741
B VIDEO OUT Q742
B IK DET 1 Q744
B IK DET 2 Q743
CB
B CRT
T4
-3V RECT D9
-3V
+3V RECT D8
+3V
+10V RECT D10
+10V
-10V RECT D11
-10V
HEATER
HEATER
V STOPPER D12
V RECT D13
+VB
+115V
CONV
IC1(2/2)
IC1(1/2)
HV REG
IC2(1/2)
HV PROT
+12V
+5V
IC1 HV.REG CONT
DRIVE
-H.P
PROTECT
OSC
IC1
NF
IN
PB
G2 CONT Q13
G2
DET
DF
T5
PA
PC
ABL
CONV
HV.CONV Q1
FOCUS PACK
MV
MV
FR
FG
FB
SR
SG
SB
G2
DET
DF
REG
HV BLOCK
R
G
B
PROT
D1
Y

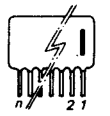
7-4. FRAME SCHEMATIC DIAGRAM


QB (AUDIO AMP)
SP901
AUDIO OUT
RGB AUDIO IN
LINE AUDIO IN
VIDEO IN
VIDEO OUT
CNJ 201
CNJ 202
CNJ 203
CNJ 204
FAN 1
FAN 2
TO VPR-722
14P MULTI CONNECTOR
CNJ6
RED
GREEN
BLUE
HD/SYNC
VD
CNJ 1
CNJ 2
CNJ 3
CNJ 4
CNJ 5
FA (MAIN DECT)
FC (FUSE)
S901 POWER
AC IN 3P INLET
TK-15 (GA·GB) (SW REG)
QA (MAIN INPUT)
BB (RGB PROCESS)
BA (PAL,SECAM,NTSC DECODER)
X (LAMP)
S902 MASTER SW
HA (CUSTOMER CONTROL)
D (RGB PROCESSOR, H.V BLK, ABL)
DB (R) SUB OUT
DB (G) (SUB OUT)
DB (B) (SUB OUT)
V.DY(R)
V.DY(G)
V.DY(B)
SUB DY (R)
SUB DY (G)
SUB DY (B)
E (H.DRIVE, H.OUT, PIN DRIVE, PIN OUT)
EB (PIN MOD CONTROL)
EC (R) (H.CENT OUT)
EC (G) (H.CENT OUT)
EC (B) (H.CENT OUT)
PA (HV REG)
PB (HV CONTROL)


EB (PIN MOD CONTROL)
EC (R) (H.CENT OUT)
EC (G) (H.CENT OUT)
EC (B) (H.CENT OUT)
E
(H.DRIVE, H.OUT, PIN DRIVE, PIN OUT)
E-1
H-DY(R)
RET
H.DY (R)
E-2
H-DY(G)
H.DY (G)
E-3
H-DY(B)
H.DY (B)
E-9 (RED)
GND
SENS
-12V
FAN3
E-4
CR
(RED VIDEO OUT)
CR-4 (RED)
RED
GND
+12V
IK(R)
CR-3 (RED)
230V
NC
H
CR-2
CR-1
G2
G4
CR-5 (WHT)
SG
CG
(GEEN VIDEO OUT)
CG-4 (WHT)
GREEN
IK(G)
CG-3 (WHT)
CG-2
CG-1
CG-5 (WHT)
CB
(BLUE VIDEO OUT)
CB-4 (YEL)
BLUE
IK(B)
CB-3 (YEL)
CB-2
CB-1
CB-5 (WHT)
V901
SD-187(R)
SD-187(G)
SD-187(B)
PICTURE TUBE
NECK ASSY
DY-2 (RED)
DY-1 (WHT)
DY(R)
DY(G)
DY(B)
R
G
B
PA-6 (YEL)
LED
+12V
Y-1 (YEL)
Y (POWER IND)
PA-9 (RED)
PA-10 (WHT)
PA-11 (YEL)
PA (HV REG)
PB (HV CONTROL)
PA-14
G2
DF
NC
DET
PA-3
REG OUT
ABL
CONV
PC-1
PC
(FBT, H.CONV)
FBT 1
FBT 2
HV
MV
PA-4 (WHT)
HV.RED
PA-5 (RED)
HV.PROT
FOCUS PACK
SCREEN(B)
FOCUS(B)
SCREEN(G)
FOCUS(G)
SCREEN(R)
FOCUS(R)
HVR
REG
PROT
FBT-1
FBT-2

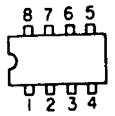
7-5. SEMICONDUCTORS

BX-1121
BX-1122



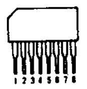
(Marking side view)

CX-7916
HA17558
NJM2903D
NJM4558D
TL082CP
µPC393C
µPC4082C
µPC4558C
µPC4570C

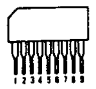


(Top view)

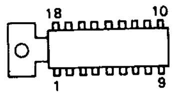
CX-7948
CX20061
M5218L



CX-894

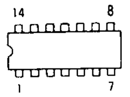


CXA1044P



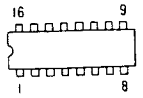
(Top view)

HD14013BP
HD14024BP
HD14069UBP
HD14071BP
HD14081BP
HD14082BP
MB84013B
MC14024BCP
MC1496P
TC4024BP
TC4069UBP
TC4071BP
TC4081BP
TC4082BP
µPC1394C
µPC339C
µPD4024BC



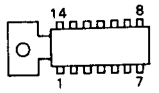
(Top view)

HD14040BP
HD14046BP
HD14052BP
HD14053BP
MB84052B
MC14052BCP
MC14053BCP
TC4040BP
TC4052BP
TC4053BP



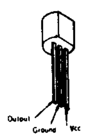
(Top view)

LA2600

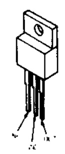


(Top view)

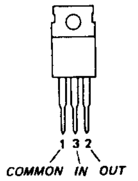
NJM78L09A
NJM78L12A
TA78L009AP


Output
Ground
Vcc

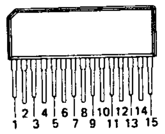
NJM78M05A
NJM78M09A
NJM78M12A
µPC78M05H
µPC78M08H
µPC78M12H



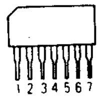
NJM79M08A
NJM79M12A
µPC79M12A
µPC79M12H


1 3 2
COMMON IN OUT

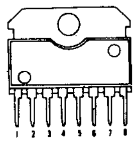
TC504013BP


2 4 6 8 10 12 14
1 3 5 7 9 11 13 15

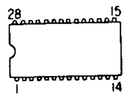
µPC1037H
µPC1037HA



µPC1241H

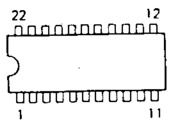


µPC1364C2
µPC1365C



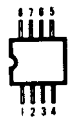
(Top view)

µPC1377C



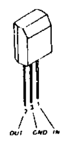
(Top view)

µPC393G2

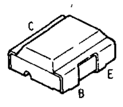


(TOP VIEW)

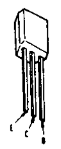
µPC78L12



2SA1037



2SA1048
2SA1115
2SC2458
2SC2603
2SC403SP
DTC144ES
DTC144WS



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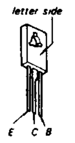
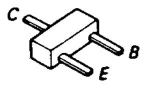
2SA1381
2SC2688
2SC3503


letter side
E C B

2SA1162



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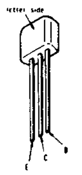
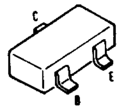
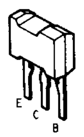
2SC2785


letter side
E C B

2SA1179M
2SA812
2SC1623
2SC2412
2SC2712
2SC2812
2SC3052
DTC144TK
DTC144WK



2SA1428
2SC3668



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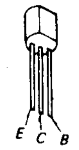
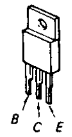
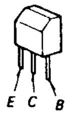
2SC1740



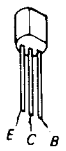
2SB1015
2SC3163
2SC3675
2SD1399
2SD1399-CA
2SD1406



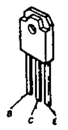
2SB734
2SC2959
2SD774



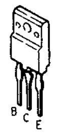
2SB740
2SC2230A
2SC2383
2SD789



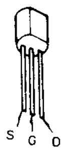
2SC2555



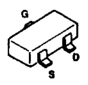
2SD1548



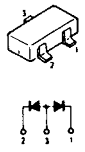
2SK105A
2SK105A-30
2SK107



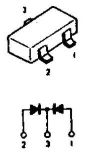
2SK160-K4
2SK160-K5
2SK160-K6



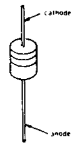
1S2835
DAN202K
MA151WA



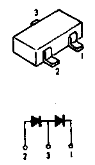
1S2837
MA151WK



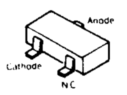
1SS119
1SS133T
1SS148
HZS13NB
HZS13NB2
HZS15NB3
HZS6.8NB3
HZS8.2NB2
MTZJ-T-73-6.8C
MTZJ-T-73-8.2C
MTZJ-T-77-13B
MTZJ-T-77-15C
MTZJ-T-77-5.1B
RD13ES-B2
RD15ES-B3
RD8.2ES-B3


cathode
anode

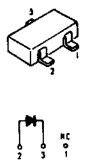
1SS123
DA204K
MA153



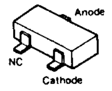
1SS187
1SS190


Anode
Cathode
NC

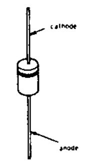
1SS193
RD5.1M-B1
RD5.1M-B2
RD5.1M-B3



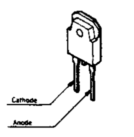
1SS196


Anode
NC
Cathode

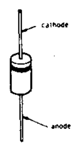
EQB01-33
RU-1
RU-1A
SIB01-02V1


cathode
anode

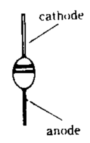
ERC26-15S
V06C
V09C
V19E


Cathode
Anode

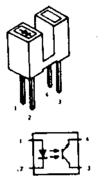
ERD28-08S
GP08DPKG23
HZS8.2NB2TD
RD5.1ES-T1B1
RD6.8ES-B3


cathode
anode

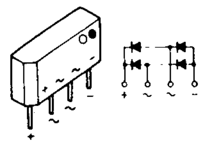
GH3F
V11N


cathode
anode

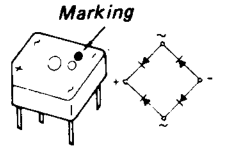
HZS5.1NB2
RD5.1ES-B2



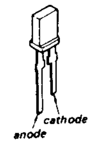
S1VB20



S3WB60Z



GL-9NG2


cathode
anode

7-6. SCH
– C

Note:

Note:

- All cap
  50 WV
- All res
  on the
  kΩ =
- Δ
- All va
  curve l
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  replac
  origin
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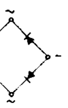
  neces
  the s
  achie
  (Refe
  on p
  When
  perfc



7-6. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

– Conductor Side –

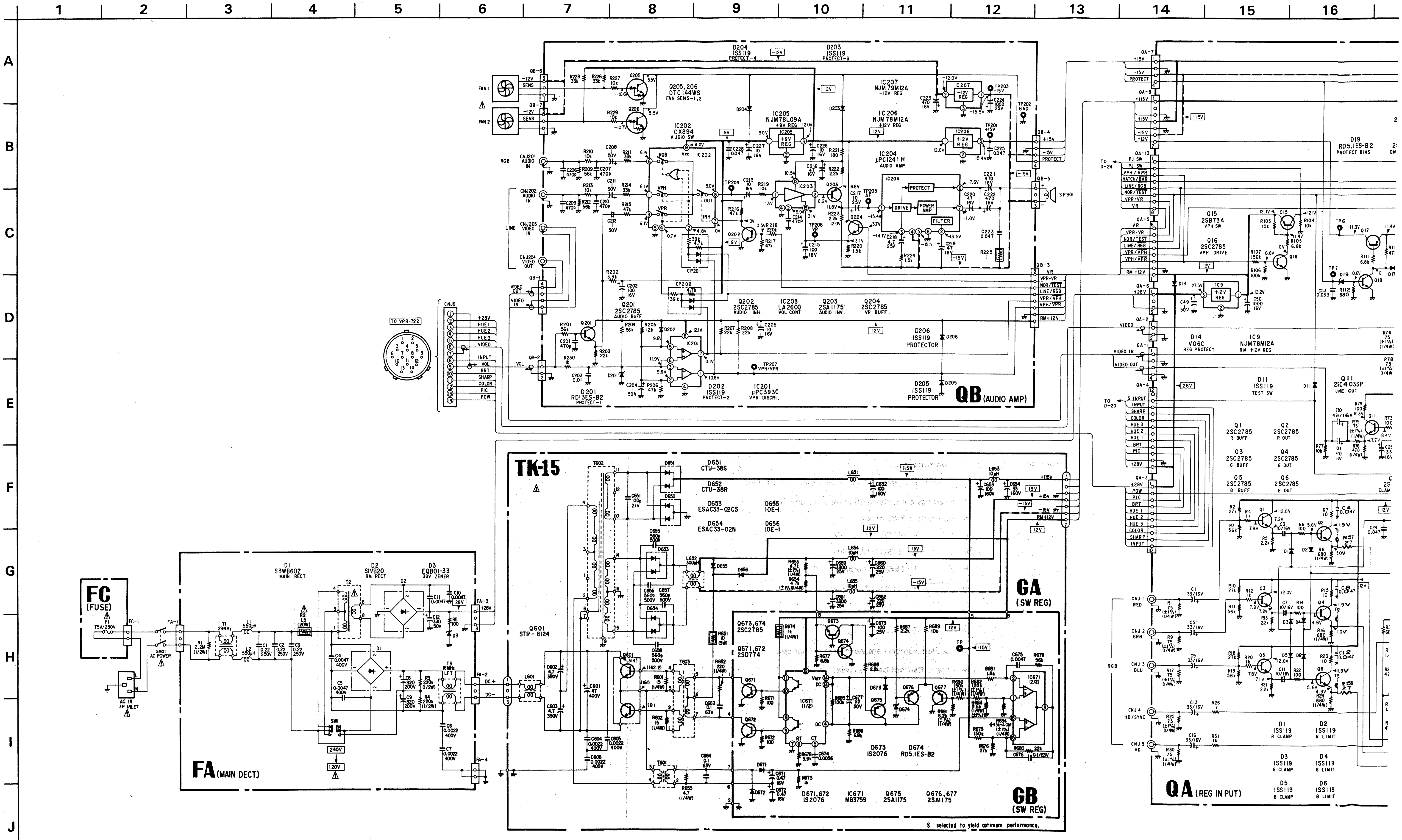
Note:

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- All capacitors are in μF unless otherwise noted. p : μμF 50 WV or less are not indicated except for electrolytics.
- All resistor are in ohms, 1/10W on the BA board and 1/6W on the rest of the boards unless otherwise specified. kΩ = 1000Ω, MΩ = 1000kΩ
- ▭ : nonflammable resistor.
- △ : internal component.
- ☐ : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by ▣ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
  When replacing components identified by ◪, make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ▣ and repeat the adjustment until the specified value is achieved.
  (Refer to R23, R38, R39, R48, R49, R88 and R89 adjust on page 38~39)
  When replacing the part in below table, be sure to perform the related adjustment.

Part replaced (◪)	Adjustment (▣)
C30, D16, D22, IC2, Q10 R15, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44 PA board complete	HV HOLD DOWN (R38, R39) Page 38
C3, C39, C56, D17, IC1 L2, Q14, R31, R32, R33, R34, R46, R47, R48, R49, R82, R83, R84, PA board complete, IC1, R3, R4, R7, R14 PB board mount	HV REG (R48, R49) Page 38
D15, D20, IC3, Q9, Q11, Q12, R16, R18, R19, R20, R21, R22, R23, R50, R51, R52, R53, R54, R69, PA board complete	BEAM CURRENT PROTECTOR (R23) Page 39
D18, IC1, R18, R85, R86 R87, R88, R89, PA board complete	OVER VOLTAGE PROTECTOR (R88, R89) Page 39

- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- Reading are taken with a 10 MΩ digital multimeter.
- Readings are taken with color-bar signal input.
- No mark : PAL mode.
- ≪ ≫: NTSC 4.43 mode.
- < >: NTSC 3.58 mode.
- ( ) : SECAM mode.
- ☐: adjustment for repair.
- —— : B+ bus.
- – – –: B– bus.
- Circled numbers are waveform references.
- ⋇ : Can not be measured.


1
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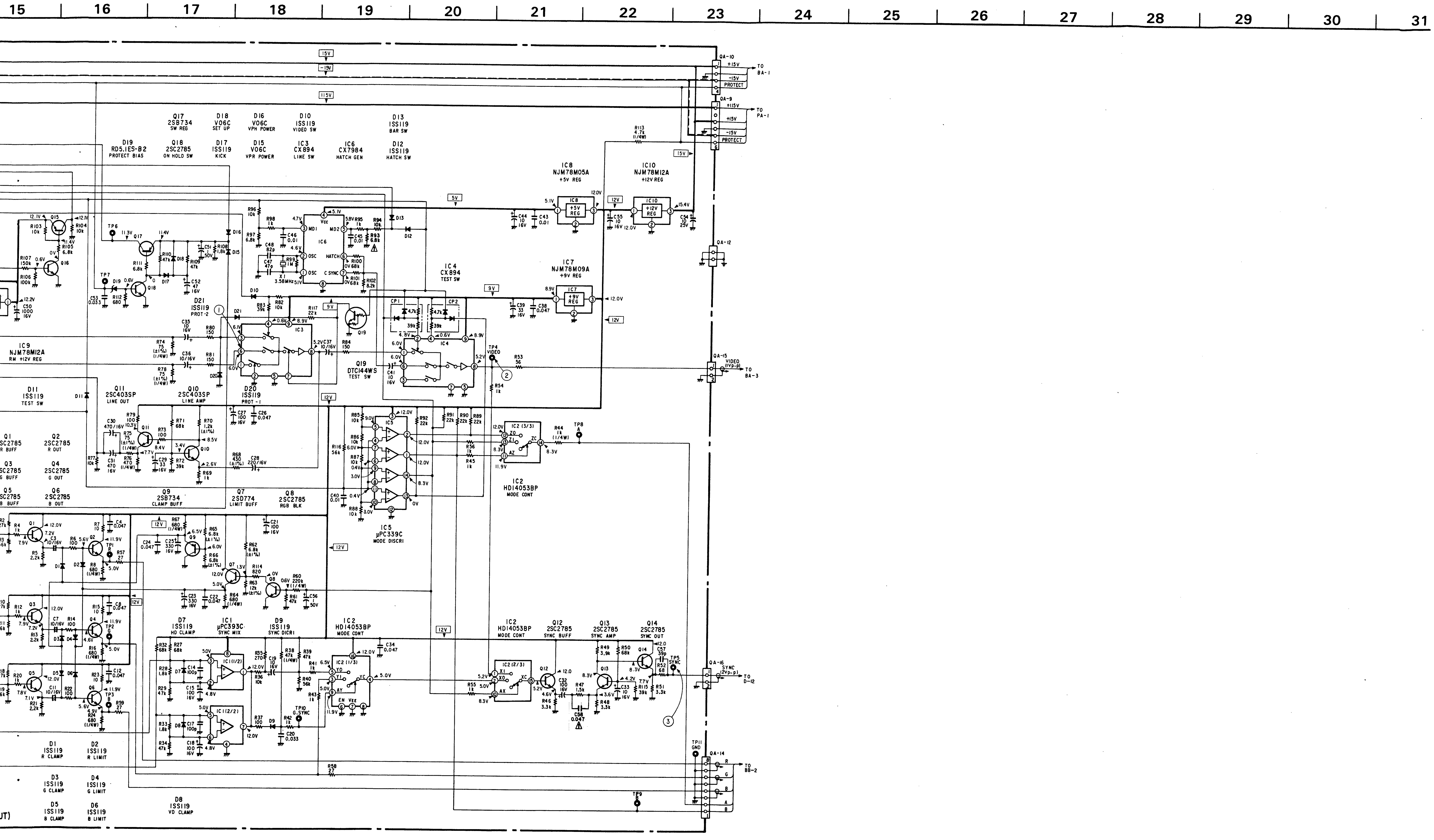
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
QB (AUDIO AMP)
IC202 CX894 AUDIO SW
IC205 NJM78L09A +9V REG
IC207 NJM79M12A -12V REG
IC206 NJM78M12A +12V REG
IC204 μPC1241H AUDIO AMP
Q205,206 DTC144WS FAN SENS-1,2
D204 ISS119 PROTECT-4
D203 ISS119 PROTECT-3
FAN 1
FAN 2
SP901
CNJ201 AUDIO IN
CNJ202 AUDIO IN
CNJ203 VIDEO IN
CNJ204 VIDEO OUT
RGB
LINE
CNJ6
TO VPR-722
Q201 2SC2785 AUDIO BUFF
Q202 2SC2785 AUDIO INH.
IC203 LA2600 VOL CONT.
Q203 2SA1175 AUDIO INV.
Q204 2SC2785 VR BUFF.
D206 ISS119 PROTECTOR
D205 ISS119 PROTECTOR
D201 RD13ES-B2 PROTECT-1
D202 ISS119 PROTECT-2
IC201 μPC393C VPR DISCRI.
PROTECT
DRIVE
POWER AMP
FILTER
TK-15
D651 CTU-38S
D652 CTU-38R
D653 ESAC33-02CS
D654 ESAC33-02N
D655 10E-1
D656 10E-1
Q601 STR-8124
T602
T603
T601
GA (SW REG)
GB (SW REG)
Q673,674 2SC2785
Q671,672 2SD774
D671,672 1S2076
IC671 MB3759
Q675 2SA1175
Q676,677 2SA1175
D673 1S2076
D674 RD5.1ES-B2
FC (FUSE)
F1 T5A/250V
AC IN 3P INLET
S901 AC POWER
FA (MAIN DECT)
D1 S3WB60Z MAIN RECT
D2 S1VB20 RM RECT
D3 EQB01-33 33V ZENER
T1 29MHz
T2
T3 18MHz LFT
240V
120V
QA (REG IN PUT)
Q15 2SB734 VPH SW
Q16 2SC2785 VPH DRIVE
D19 RD5.1ES-B2 PROTECT BIAS
D14 V06C REG PROTECT
IC9 NJM78M12A RM +12V REG
D11 ISS119 TEST SW
Q11 2SC403SP LINE OUT
Q1 2SC2785 R BUFF
Q2 2SC2785 R OUT
Q3 2SC2785 G BUFF
Q4 2SC2785 G OUT
Q5 2SC2785 B BUFF
Q6 2SC2785 B OUT
D1 ISS119 R CLAMP
D2 ISS119 R LIMIT
D3 ISS119 G CLAMP
D4 ISS119 G LIMIT
D5 ISS119 B CLAMP
D6 ISS119 B LIMIT
CNJ 1 RED
CNJ 2 GRN
CNJ 3 BLU
CNJ 4 HD/SYNC
CNJ 5 VD
TO D-24
TO D-20

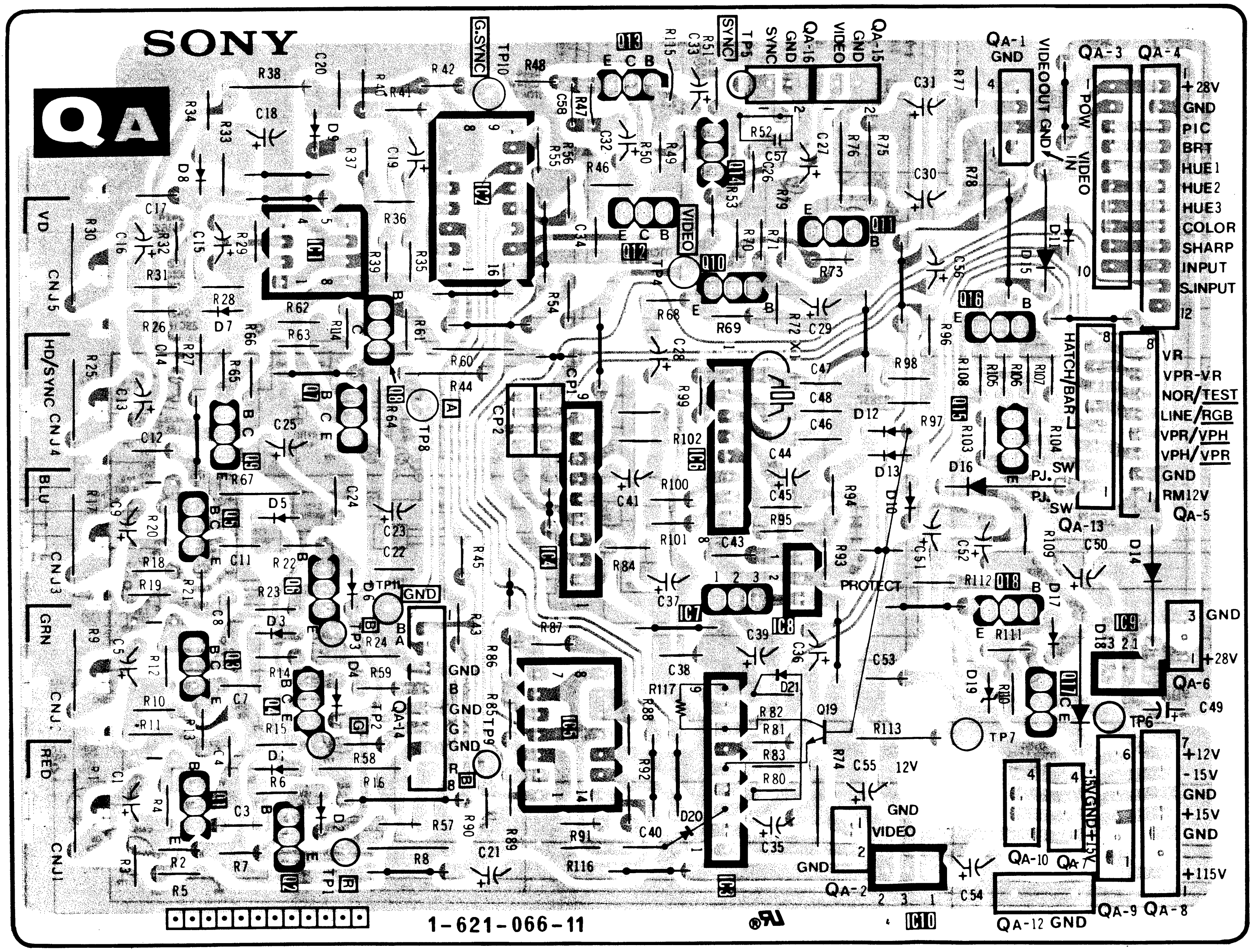
※: selected to yield optimum performance.


15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
Q17 2SB734 SW REG
D18 V06C SET UP
D16 V06C VPH POWER
D10 1SS119 VIDEO SW
D13 1SS119 BAR SW
D19 RD5.1ES-B2 PROTECT BIAS
Q18 2SC2785 ON HOLD SW
D17 1SS119 KICK
D15 V06C VPR POWER
IC3 CX894 LINE SW
IC6 CX7984 HATCH GEN
D12 1SS119 HATCH SW
IC8 NJM78M05A +5V REG
IC10 NJM78M12A +12V REG
IC4 CX894 TEST SW
IC7 NJM78M09A +9V REG
IC9 NJM78M12A RM +12V REG
D21 1SS119 PROT-2
Q19 DTC144WS TEST SW
D11 1SS119 TEST SW
Q11 2SC403SP LINE OUT
Q10 2SC403SP LINE AMP
D20 1SS119 PROT-1
Q1 2SC2785 R BUFF
Q2 2SC2785 R OUT
Q3 2SC2785 G BUFF
Q4 2SC2785 G OUT
Q5 2SC2785 B BUFF
Q6 2SC2785 B OUT
Q9 2SB734 CLAMP BUFF
Q7 2SD774 LIMIT BUFF
Q8 2SC2785 RGB BLK
IC5 μPC339C MODE DISCRI
IC2 HD14053BP MODE CONT
D7 1SS119 HD CLAMP
IC1 μPC393C SYNC MIX
D9 1SS119 SYNC DICRI
Q12 2SC2785 SYNC BUFF
Q13 2SC2785 SYNC AMP
Q14 2SC2785 SYNC OUT
D1 1SS119 R CLAMP
D2 1SS119 R LIMIT
D3 1SS119 G CLAMP
D4 1SS119 G LIMIT
D5 1SS119 B CLAMP
D6 1SS119 B LIMIT
D8 1SS119 VD CLAMP
QA-10
+15V
-15V
PROTECT
TO BA-1
QA-9
+115V
+15V
-15V
PROTECT
TO PA-1
QA-12
QA-15
VIDEO (1Vp-p)
TO BA-3
QA-16
SYNC (2Vp-p)
TO D-12
QA-14
R
G
B
A
B
TO BB-2
TP4 VIDEO
TP5 SYNC
TP6
TP7
TP8
TP9
TP10 G SYNC
TP11 GND
15V
-15V
115V
5V
9V
12V
IC2 (1/3)
IC2 (2/3)
IC2 (3/3)
IC1 (1/2)
IC1 (2/2)
R113 4.7k (1/4W)
3.58MHz
UT)

QA [REG IN PUT]

– QA board –

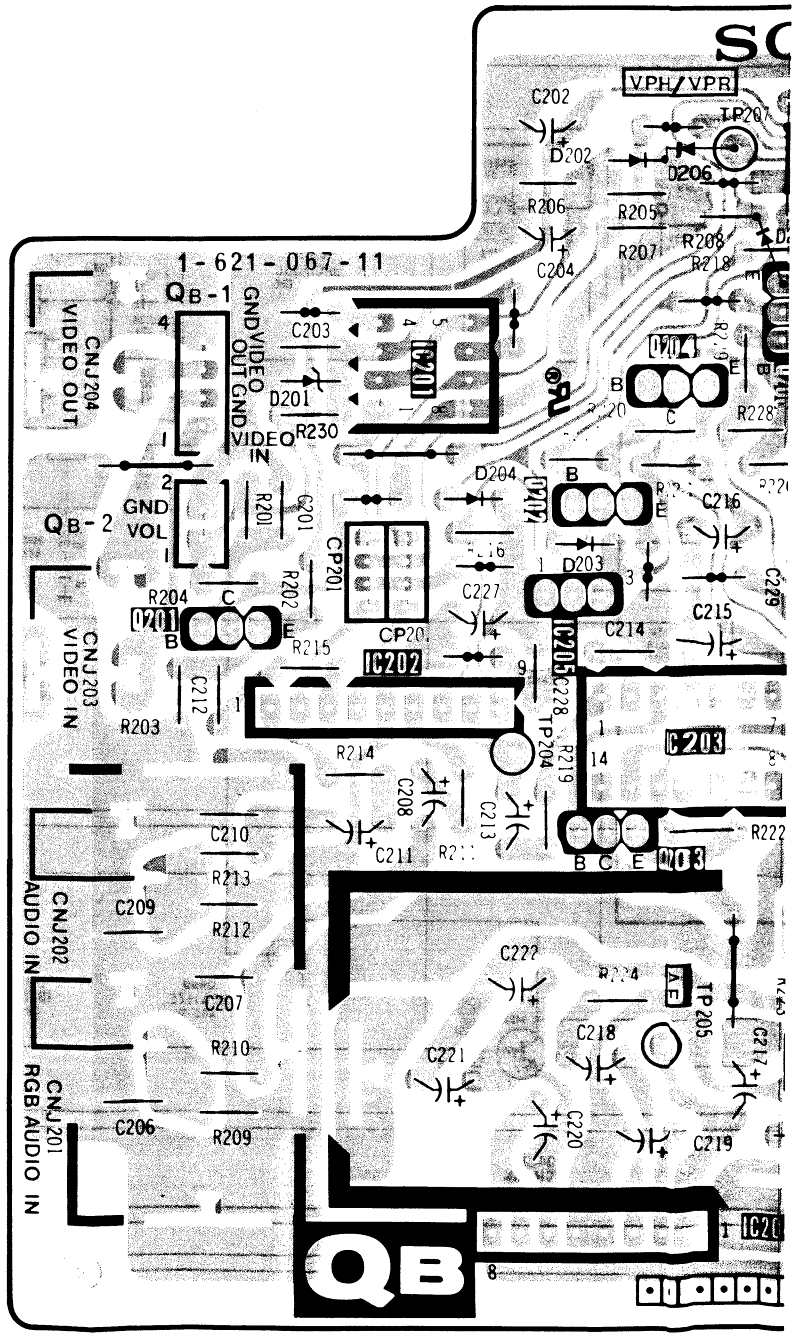
	1	2	3	4	5	6	7	8	9	10
IC				1	2 5	4	6 3 7 8	10	9	
Q			5 3 1 9	2 4 6 7 8		13 12	14 10 11 19		16 15 18 17	
D			8 7 5 3 1	9 2 4 6		20	21	12 13 10 16 19	15 11 17 18	14
TP				2 1 11 8	10 9	4	5	7		


SONY
QA
1-621-066-11
G.SYNC
TP10
SYNC
VIDEO
QA-1 GND
QA-3
QA-4
+28V
GND
PIC
BRT
HUE1
HUE2
HUE3
COLOR
SHARP
INPUT
S.INPUT
VR
VPR-VR
NOR/TEST
LINE/RGB
VPR/VPH
VPH/VPR
GND
RM12V
QA-5
QA-13
PROTECT
QA-6
+12V
-15V
GND
+15V
GND
+115V
QA-8
QA-9
QA-10
QA-12 GND
QA-2
QA-14
CNJ1
CNJ2
CNJ3
CNJ4
CNJ5
RED
GRN
BLU
HD/SYNC
VD
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10

QB [AUDIO AMP]

– QB board –

	12	13	14	15	1
IC			201 202	205 204 203	206
Q		201		202 203 204	
D		201	204	202 206 203	205 207
TP			204	205	

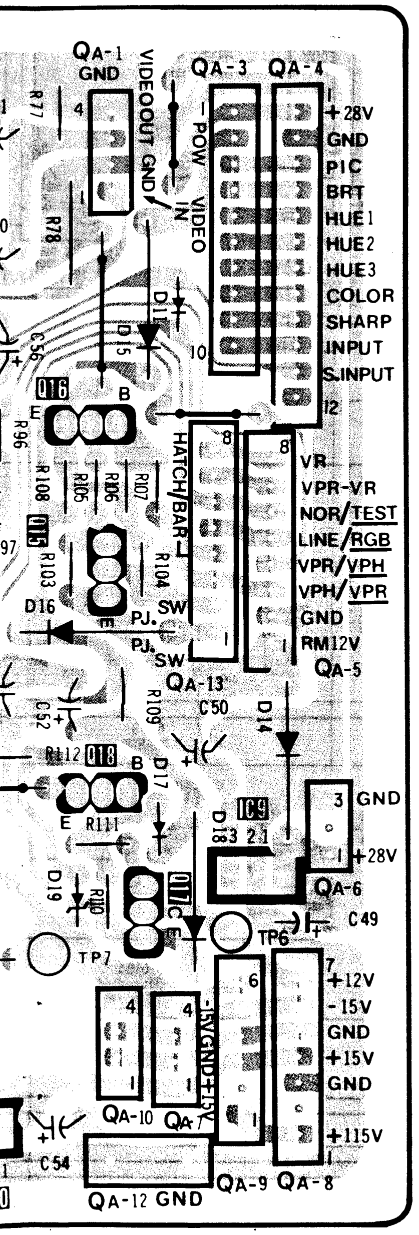

QB
1-621-067-11
VPH/VPR
TP207
QB-1
QB-2
GND VOL
CNJ204 VIDEO OUT
CNJ203 VIDEO IN
CNJ202 AUDIO IN
CNJ201 RGB AUDIO IN
IC201
IC202
IC203
IC205
TP204
TP205

QB [AUDIO AMP]

FA [MAIN DECT]

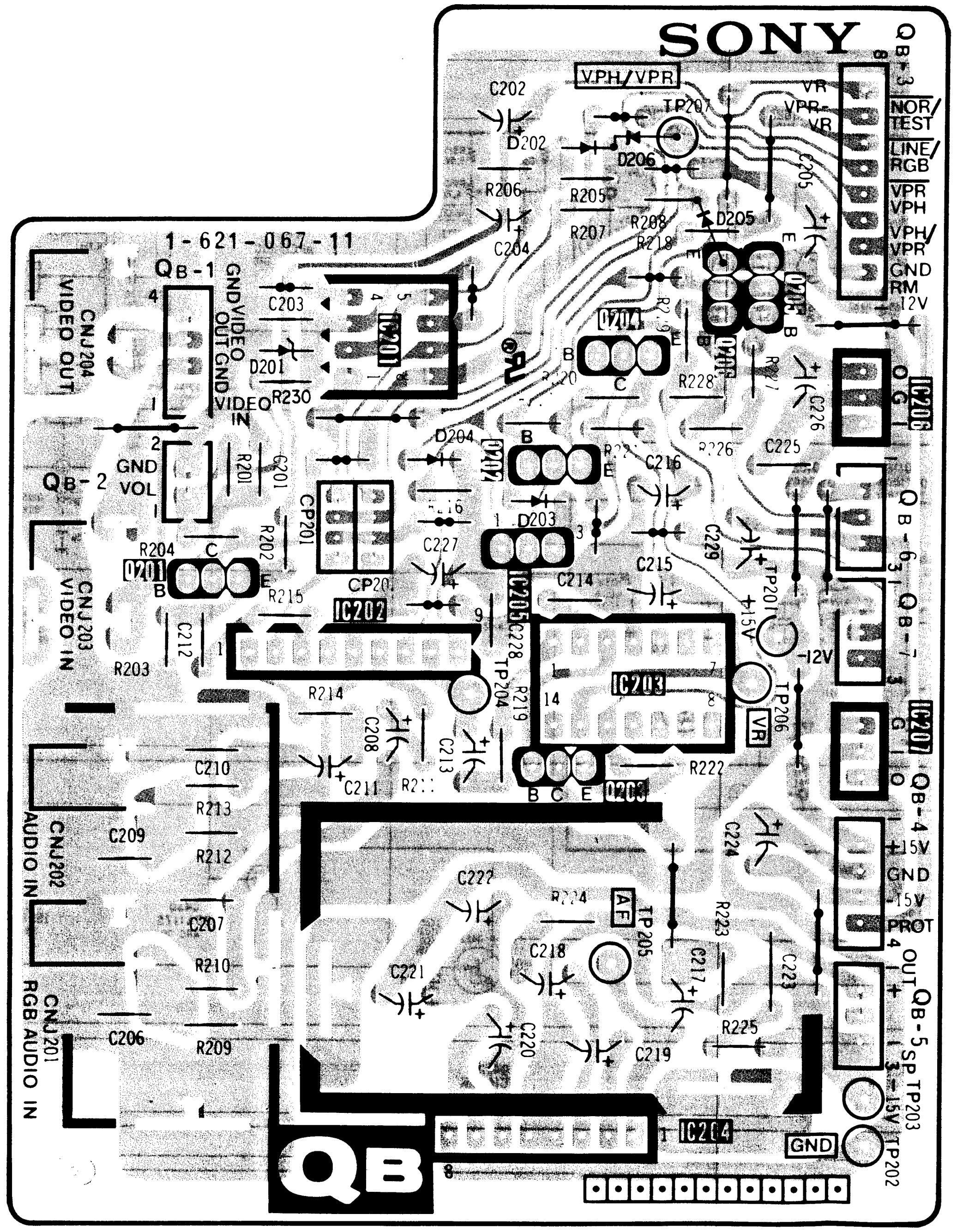
FC [FUSE]

	9	10
	9	
	16 15 18 17	
16 19	15 11 17 18	14
7		

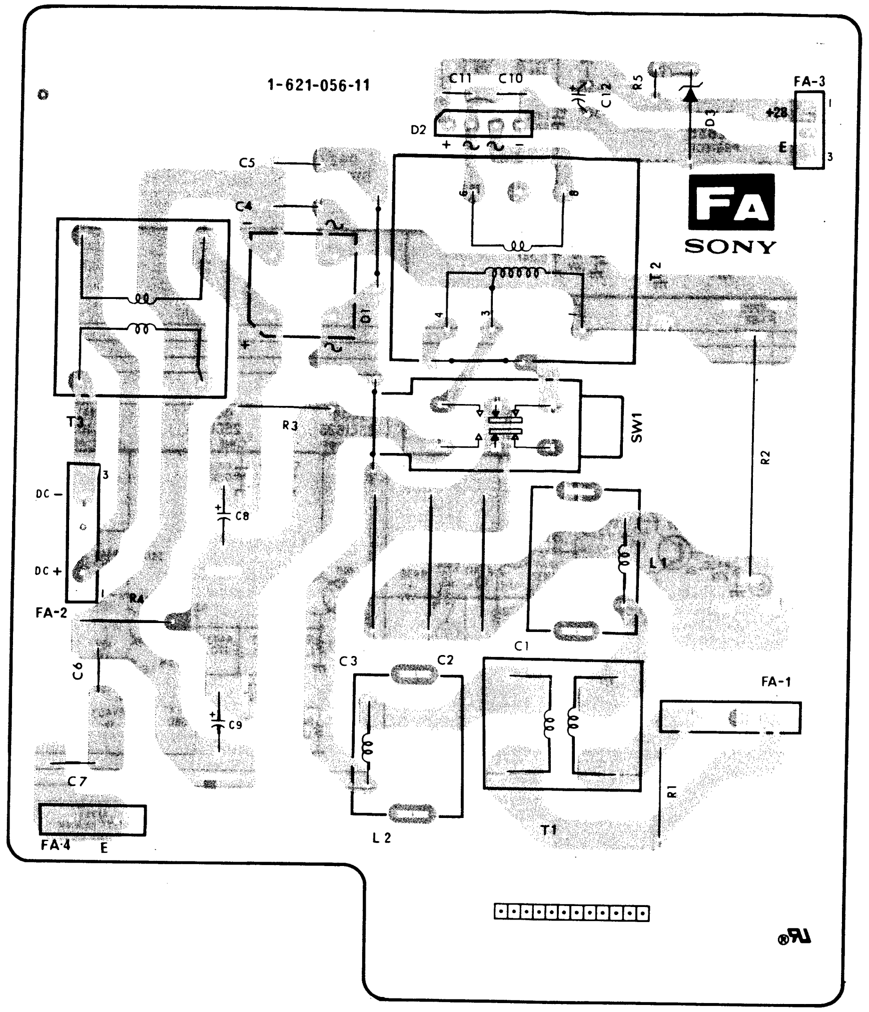

QA-1
GND
VIDEO OUT GND
VIDEO IN
POW
QA-3
QA-4
+28V
GND
PIC
BRT
HUE1
HUE2
HUE3
COLOR
SHARP
INPUT
S.INPUT
VR
VPR-VR
NOR/TEST
LINE/RGB
VPR/VPH
VPH/VPR
GND
RM12V
QA-5
HATCH/BAR
PJ. SW
QA-13
Q16
Q15
Q18
Q17
IC9
D16
D14
D17
D18
D19
C50
C49
C52
C54
C55
R77
R78
R96
R103
R104
R106
R107
R108
R109
R110
R111
R112
TP6
TP7
GND
+28V
QA-6
+12V
-15V
GND
+15V
GND
+115V
QA-10
QA-9
QA-8
QA-12 GND

— QB board —

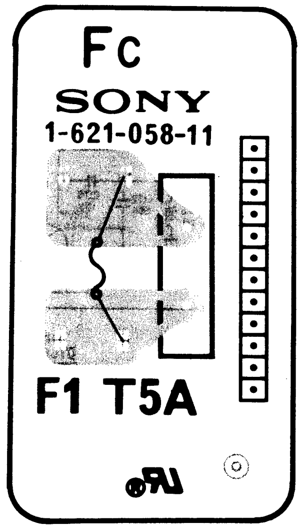
	12	13	14	15	16	17
IC			201 202	205 204 203		206 207
Q		201		202 203 204	206,205	
D		201	204	203 202 206	205	
TP			204	205	207 201 206	203 202

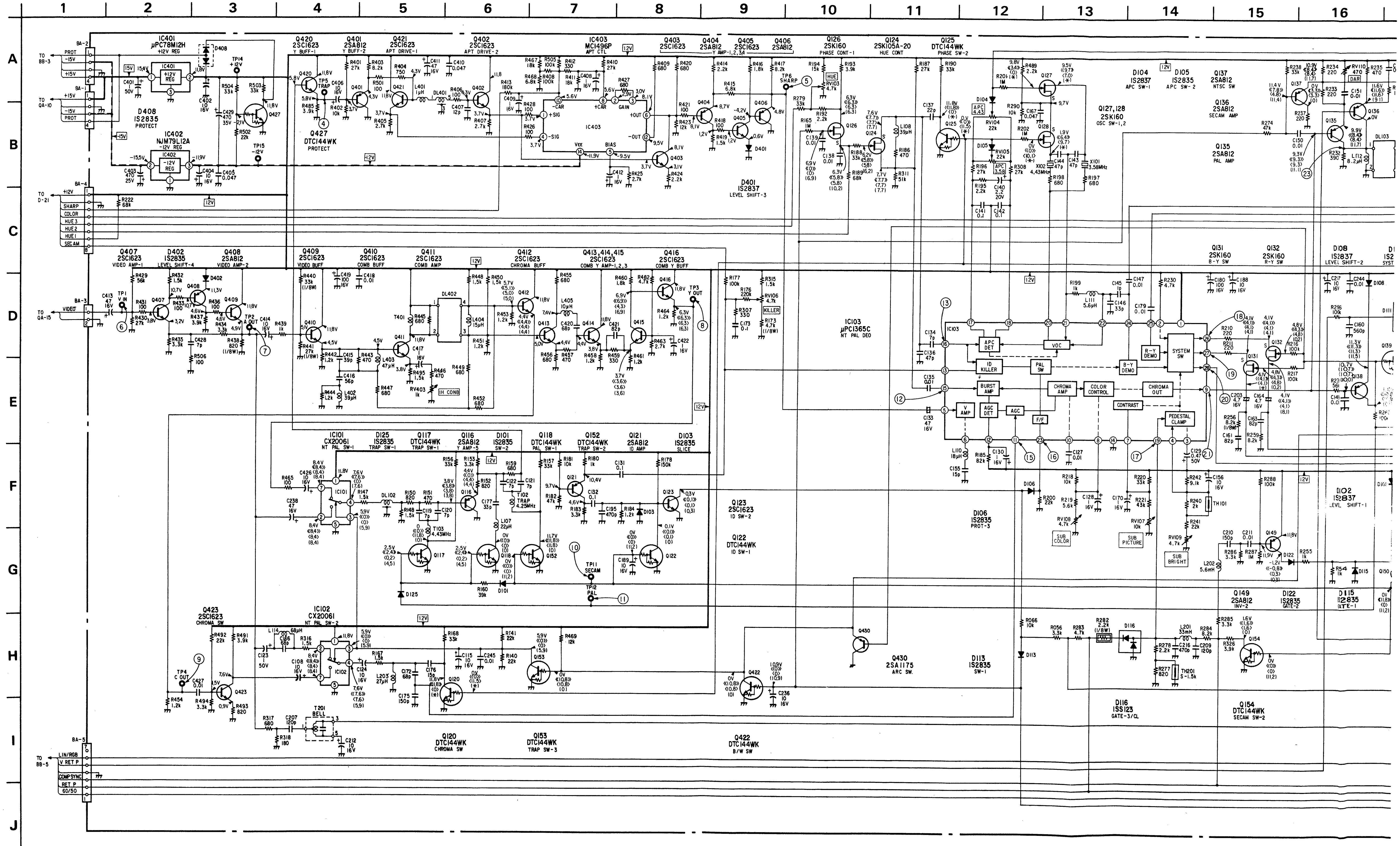

SONY
QB-3
VPH/VPR
1-621-067-11
QB-1
GND VIDEO OUT GND VIDEO IN
CNJ204 VIDEO OUT
CNJ203 VIDEO IN
CNJ202 AUDIO IN
CNJ201 RGB AUDIO IN
QB-2 GND VOL
C202
D202
TP207
D206
R206
R205
R207
R208
R218
D205
C205
C204
C203
D201
IC201
R230
D204
Q204
Q206
Q205
R228
C226
R201
C201
CP201
R202
R204
Q201
R215
IC202
CP202
C227
D203
Q202
C216
R226
C225
C229
C215
C214
IC205
C228
TP201
+15V
-12V
IC203
TP206
VR
TP204
R219
R214
C208
C213
R222
Q203
B C E
C212
R203
C210
R213
R212
C209
C211
C222
R224
AF
TP205
C218
C221
C220
C219
C217
C223
R223
R225
C224
C207
R210
R209
C206
IC204
GND
TP202
TP203
NOR/TEST
LINE/RGB
VPR/VPH
VPH/VPR
GND
RM
12V
IC206
QB-6
QB-7
IC207
QB-4
+15V
GND
-15V
PROT
OUT
QB-5
SP
-15V
QB

— FA board —


1-621-056-11
FA
SONY
FA-3
+28
E
C11
C10
C12
R5
D2
D3
C5
C4
D1
T2
T3
R3
SW1
R2
DC-
DC+
C8
L1
FA-2
R4
C6
C3
C2
C1
FA-1
C9
C7
FA-4
E
L2
T1
R1

— FC board —


Fc
SONY
1-621-058-11
F1 T5A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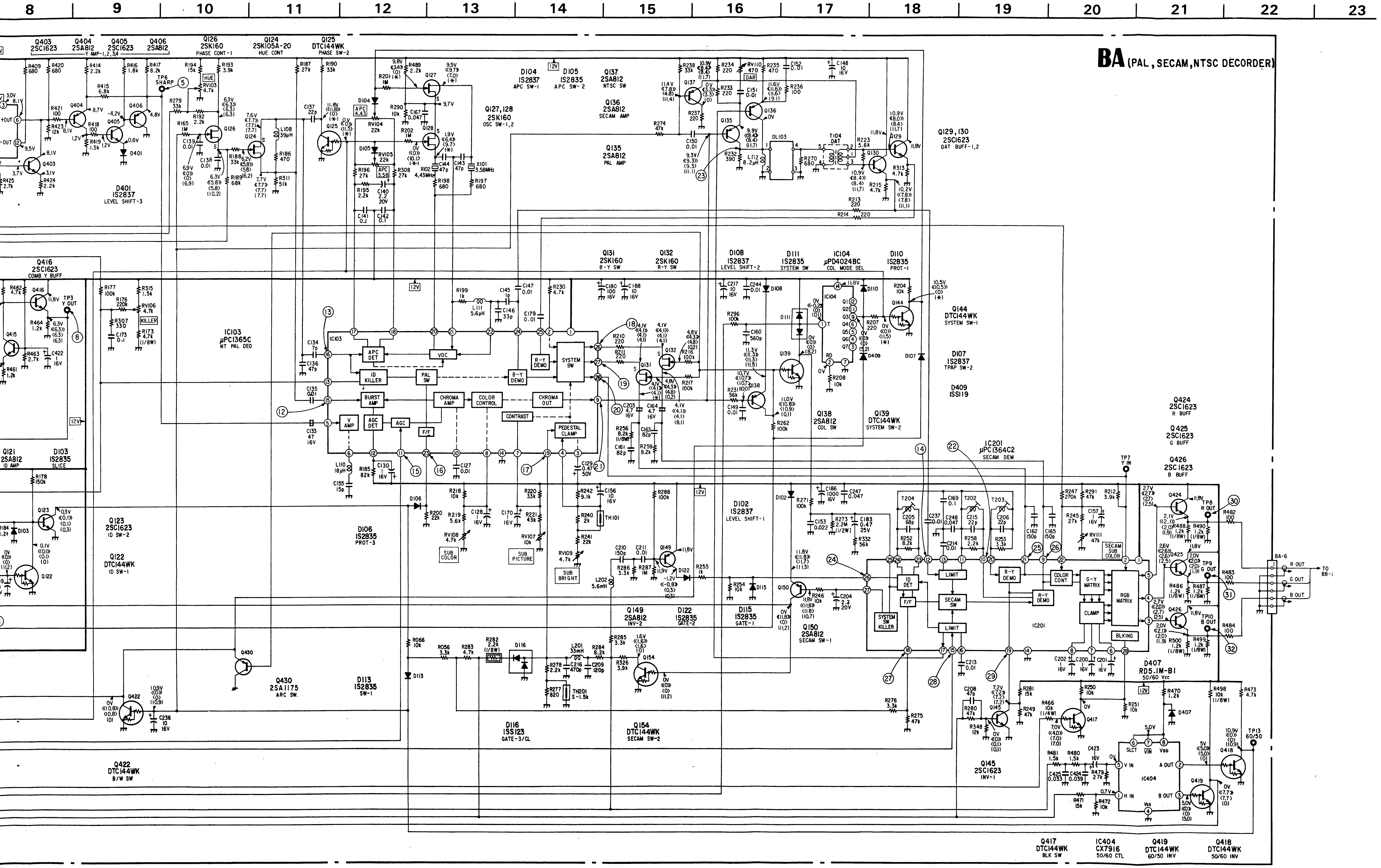
16
A
B
C
D
E
F
G
H
I
J
TO BB-3
PROT
-15V
+15V
TO QA-10
TO D-21
+12V
SHARP
COLOR
HUE 3
HUE 2
HUE 1
SECAM
TO QA-15
VIDEO
TO BB-5
LIN/RGB
V RET P
COMP SYNC
RET P
60/50
BA-1
BA-2
BA-3
BA-4
BA-5
IC401 μPC78M12H +12V REG
IC402 NJM79L12A -12V REG
D408 1S2835 PROTECT
Q427 DTC144WK PROTECT
TP14 +12V
TP15 -12V
Q420 2SC1623 Y BUFF-1
Q401 2SA812 Y BUFF-2
Q421 2SC1623 APT DRIVE-1
Q402 2SC1623 APT DRIVE-2
IC403 MC1496P APT CTL
Q403 2SC1623
Q404 2SA812 Y AMP-1,2,3,4
Q405 2SC1623
Q406 2SA812
TP5 TRAP
TP6 SHARP
D401 1S2837 LEVEL SHIFT-3
Q126 2SK160 PHASE CONT-1
Q124 2SK105A-20 HUE CONT
Q125 DTC144WK PHASE SW-2
HUE
D104 1S2837 APC SW-1
D105 1S2835 APC SW-2
Q137 2SA812 NTSC SW
Q136 2SA812 SECAM AMP
Q127,128 2SK160 OSC SW-1,2
Q135 2SA812 PAL AMP
X101 3.58MHz
X102 4.43MHz
DAR
DL103
Q407 2SC1623 VIDEO AMP-1
D402 1S2835 LEVEL SHIFT-4
Q408 2SA812 VIDEO AMP-2
Q409
TP1 V IN
TP2 A OUT
Q409 2SC1623 VIDEO BUFF
Q410 2SC1623 COMB BUFF
Q411 2SC1623 COMB AMP
Q412 2SC1623 CHROMA BUFF
Q413,414,415 2SC1623 COMB Y AMP-1,2,3
Q416 2SC1623 COMB Y BUFF
TP3 Y OUT
DL402
T401
1H COMB
KILLER
IC103 μPC1365C NT PAL DEO
Q131 2SK160 B-Y SW
Q132 2SK160 R-Y SW
D108 1S2837 LEVEL SHIFT-2
APC DET
ID KILLER
PAL SW
VOC
R-Y DEMO
B-Y DEMO
SYSTEM SW
BURST AMP
CHROMA AMP
COLOR CONTROL
CHROMA OUT
CONTRAST
V AMP
AGC DET
AGC
F/F
PEDESTAL CLAMP
IC101 CX20061 NT PAL SW-1
D125 1S2835 TRAP SW-1
Q117 DTC144WK TRAP SW-1
Q116 2SA812 Y AMP-5
D101 1S2835 SW-2
Q118 DTC144WK PAL SW-1
Q152 DTC144WK TRAP SW-2
Q121 2SA812 ID AMP
D103 1S2835 SLICE
Q123 2SC1623 ID SW-2
Q122 DTC144WK ID SW-1
D106 1S2835 PROT-3
T102 TRAP 4.25MHz
T103 4.43MHz
TP11 SECAM
TP12 PAL
SUB COLOR
SUB PICTURE
SUB BRIGHT
TH101
D102 1S2837 LEVEL SHIFT-1
Q149 2SA812 INV-2
D122 1S2835 GATE-2
D115 1S2835 GATE-1
Q423 2SC1623 CHROMA SW
IC102 CX20061 NT PAL SW-2
TP4 C OUT
T201 BELL
Q430 2SA1175 ARC SW.
D113 1S2835 SW-1
D116 1SS123 GATE-3/CL
Q154 DTC144WK SECAM SW-2
TH201
Q120 DTC144WK CHROMA SW
Q153 DTC144WK TRAP SW-3
Q422 DTC144WK B/W SW
12V
15V
-15V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23
BA (PAL, SECAM, NTSC DECORDER)
Q403 2SC1623
Q404 2SA812
Q405 2SC1623
Q406 2SA812
Y AMP-1,2,3,4
Q126 2SK160 PHASE CONT-1
Q124 2SK105A-20 HUE CONT
Q125 DTC144WK PHASE SW-2
D104 1S2837 APC SW-1
D105 1S2835 APC SW-2
Q137 2SA812 NTSC SW
Q136 2SA812 SECAM AMP
Q127,128 2SK160 OSC SW-1,2
Q135 2SA812 PAL AMP
Q129,130 2SC1623 DAT BUFF-1,2
D401 1S2837 LEVEL SHIFT-3
Q416 2SC1623 COMB Y BUFF
IC103 μPC1365C NT PAL DEO
Q131 2SK160 B-Y SW
Q132 2SK160 R-Y SW
D108 1S2837 LEVEL SHIFT-2
D111 1S2835 SYSTEM SW
IC104 μPD4024BC COL MODE SEL
D110 1S2835 PROT-1
Q144 DTC144WK SYSTEM SW-1
D107 1S2837 TPAP SW-2
D409 1SS119
Q138 2SA812 COL SW
Q139 DTC144WK SYSTEM SW-2
IC201 μPC1364C2 SECAM DEM
Q424 2SC1623 R BUFF
Q425 2SC1623 G BUFF
Q426 2SC1623 B BUFF
Q121 2SA812 ID AMP
D103 1S2835 SLICE
Q123 2SC1623 ID SW-2
Q122 DTC144WK ID SW-1
D106 1S2835 PROT-3
D102 1S2837 LEVEL SHIFT-1
Q149 2SA812 INV-2
D122 1S2835 GATE-2
D115 1S2835 GATE-1
Q150 2SA812 SECAM SW-1
Q430 2SA1175 ARC SW.
D113 1S2835 SW-1
D116 1SS123 GATE-3/CL
Q154 DTC144WK SECAM SW-2
Q145 2SC1623 INV-1
D407 RD5.1M-B1 50/60 Vcc
Q422 DTC144WK B/W SW
Q417 DTC144WK BLK SW
IC404 CX7916 50/60 CTL
Q419 DTC144WK 60/50 INV
Q418 DTC144WK 50/60 INV
APC DET
ID KILLER
BURST AMP
V AMP
AGC DET
AGC
PAL SW
CHROMA AMP
COLOR CONTROL
VOC
B-Y DEMO
R-Y DEMO
SYSTEM SW
CHROMA OUT
CONTRAST
PEDESTAL CLAMP
F/F
ID DET
SYSTEM SW KILLER
LIMIT
SECAM SW
COLOR CONT
G-Y MATRIX
RGB MATRIX
CLAMP
BLKING
SECAM SUB COLOR
SUB COLOR
SUB PICTURE
SUB BRIGHT
HUE
DAR
KILLER
TP3 Y OUT
TP6 SHARP
TP7 Y IN
TP8 R OUT
TP9 G OUT
TP10 B OUT
TP13 60/50
BA-6
R OUT
G OUT
B OUT
TO BB-i
X101 3.58MHz
X102 4.43MHz
DL103
T104 DAT
T204
T202
T203
TH101
TH201
12V
SLCT
VIN
VDD
V IN
A OUT
H IN
B OUT
Vss

BA

[PAL, SECAM, NTSC DECORDER]

- **Voltage table of IC103**

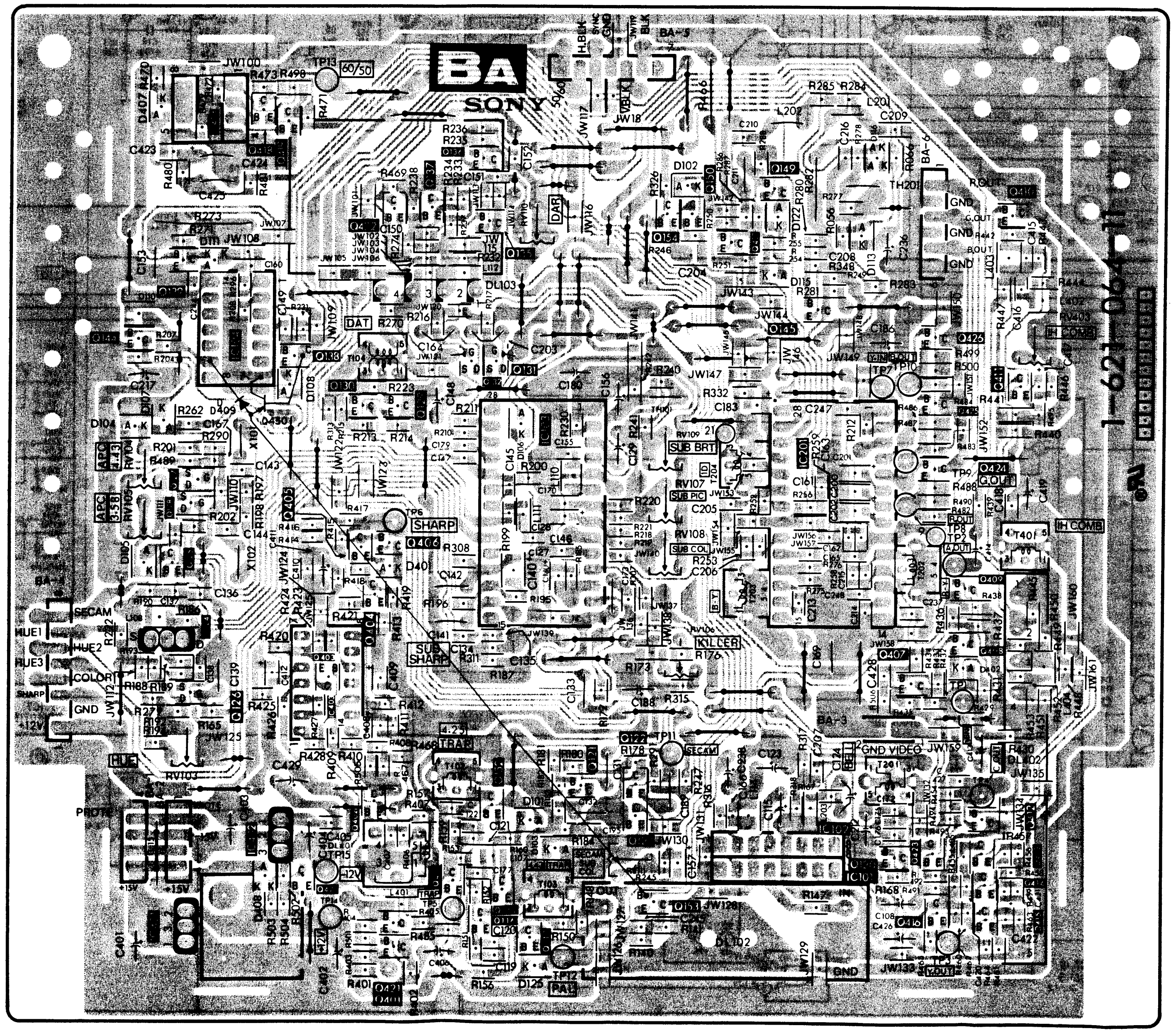
Mode / Pin	PAL	NTSC 4.43	NTSC 3.58	SECAM
1	11.8	11.8	11.8	11.8
2	11.8	11.8	11.8	11.8
3	8.6	8.6	8.6	8.6
4	8.6	8.6	8.6	8.6
5	2.6	2.6	2.6	2.6
6	1.9	1.9	1.9	1.9
7	6.9	6.9	6.9	6.9
8	5.5	5.5	5.5	5.5
9	9.3	9.3	9.3	11.0
10	1.9	1.9	1.9	2.0
11	1.2	1.2	1.2	1.2
12	9.2	9.3	9.3	9.3
13	6.0	6.1	0	8.1
14	0	0	0	0
15	7.7	7.7	7.7	7.7
16	4.4	0	4.4	4.4
17	7.8	7.7	7.9	7.8
18	7.7	7.7	7.9	7.8
19	0.3	0.3	0.3	0.3
20	9.4	9.3	9.4	9.3
21	3.2	3.2	3.2	3.2
22	3.2	3.2	3.2	3.2
23	0.2	0	0	0.2
24	2.8	2.8	2.8	2.8
25	2.8	2.8	2.8	2.8
26	4.1	4.0	4.1	4.0
27	4.1	4.1	4.1	4.0
28	10.0	10.0	10.0	10.0

- **Voltage table of IC201**

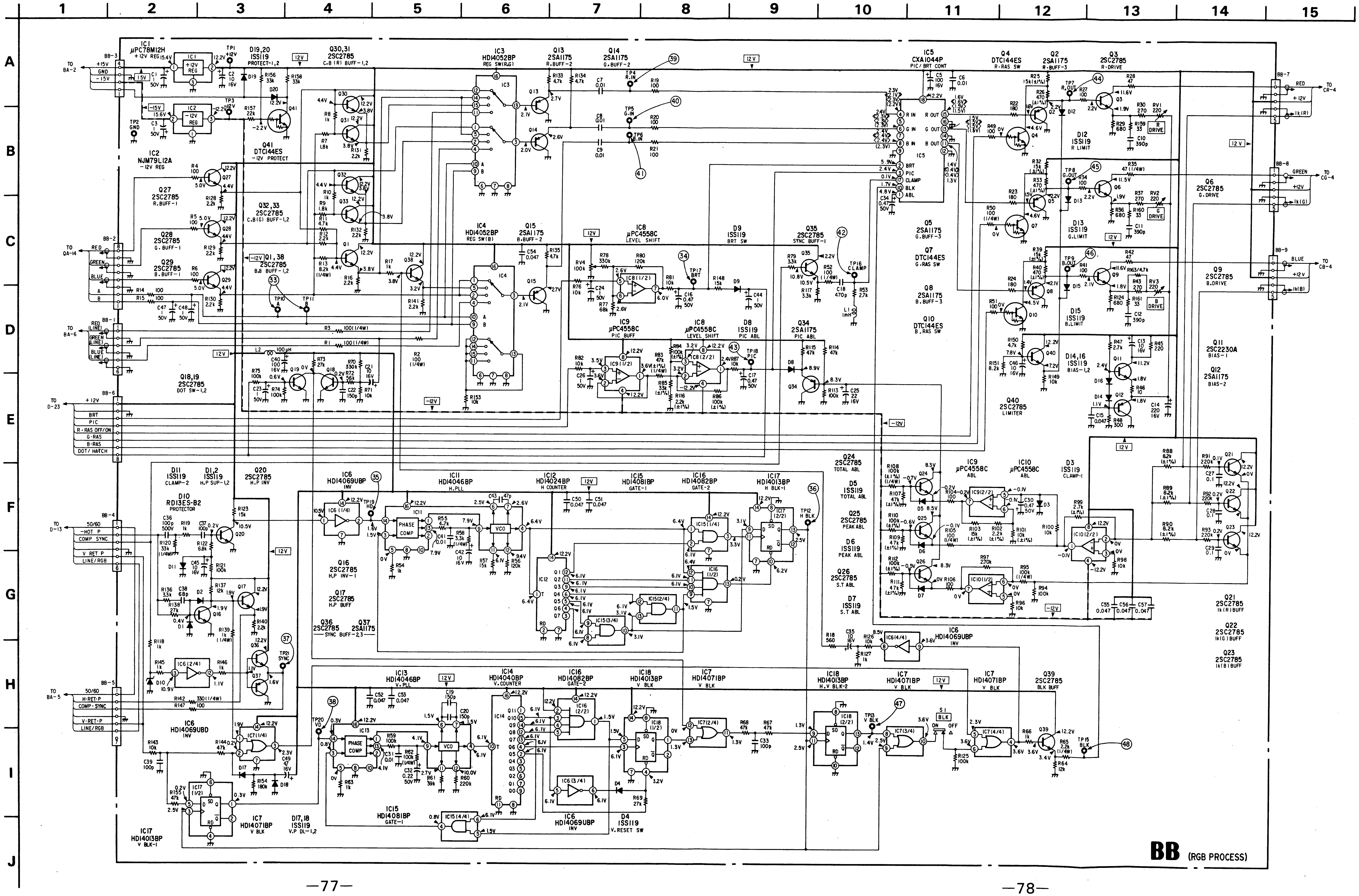
Mode / Pin	PAL	NTSC 4.43	NTSC 3.58	SECAM
1	11.8	11.8	11.8	11.8
2	10.0	10.0	10.0	10.0
3	2.7	2.7	2.7	2.5
4	2.6	2.6	2.6	2.5
5	2.7	2.7	2.7	2.5
6	1.6	1.6	1.6	1.6
7	1.2	1.2	1.1	.12
8	1.6	1.6	1.6	1.6
9	9.5	9.5	9.5	9.4
10	2.2	2.2	2.3	2.3
11	2.2	2.2	2.2	2.3
12	2.2	2.2	2.2	2.3
13	2.3	2.2	2.2	2.3
14	0	0	0	0
15	2.2	2.2	2.2	2.3
16	2.3	2.2	2.2	2.2
17	11.1	11.0	11.1	8.4
18	0.5	0.3	0.3	0.5
19	7.2	7.2	7.2	7.2
20	2.2	2.2	2.3	2.3
21	9.4	9.4	9.4	9.4
22	6.3	6.3	6.3	6.3
23	2.2	2.2	2.2	2.2
24	2.2	0	2.2	2.2
25	6.2	6.2	6.2	8.3
26	0.4	0.4	0.4	0.4
27	11.8	11.8	11.8	10.1
28	0	0	0	0

– BA board –

	6	7	8	9	10	11	12
IC	401	404 104 402 403		103	102 101	201	
Q	144 139 127 128 125 124,126	418,419 430 138 403 427	422 137 130 129 405,406 404 402,421 401 136 135 132,131 420 116 152	118 117 121 122 123	153 154 150 417 149	145 426 425 424 407 120 423 416 409 408	410 411 412 413 414 415
D	110 407 104 107 105	111 409 108 408	401	106 101 103 125	102 122 115	116 113 402	
ADJ · TP	RV104 RV105 RV103	13 15 14	6 5	RV110 12 RV111	RV109 RV107 RV108 RV106 11	7 10 9 8 2 1 3	4 RV403



BA
SONY
1-621-064-11
H.BLK
SYNC
GND
BA-5
SECAM
HUE1
HUE2
HUE3
COLOR
SHARP
GND
+12V
HUE
RV103
PROTECT
SHARP
SUB SHARP
SUB BRT
SUB PIC
SUB COL
KILLER
TRAP
DAT
DAR
PAL
GND
GND VIDEO
H COMB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A
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C
D
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G
H
I
J
IC1 μPC78M12H +12V REG
IC2 NJM79L12A -12V REG
D19,20 1SS119 PROTECT-1,2
Q41 DTC144ES -12V PROTECT
Q30,31 2SC2785 C.B(R) BUFF-1,2
Q32,33 2SC2785 C.B(G) BUFF-1,2
Q27 2SC2785 R.BUFF-1
Q28 2SC2785 G.BUFF-1
Q29 2SC2785 B.BUFF-1
Q1,38 2SC2785 B.B BUFF-1,2
IC3 HD14052BP REG SW(R,G)
Q13 2SA1175 R.BUFF-2
Q14 2SA1175 G.BUFF-2
IC4 HD14052BP REG SW(B)
Q15 2SA1175 B.BUFF-2
IC8 μPC4558C LEVEL SHIFT
D9 1SS119 BRT SW
Q35 2SC2785 SYNC BUFF-1
IC9 μPC4558C PIC BUFF
D8 1SS119 PIC ABL
Q34 2SA1175 PIC ABL
Q18,19 2SC2785 DOT SW-1,2
IC5 CXA1044P PIC/BRT CONT
Q4 DTC144ES R.RAS SW
Q2 2SA1175 R.BUFF-3
Q3 2SC2785 R.DRIVE
D12 1SS119 R.LIMIT
Q6 2SC2785 G.DRIVE
D13 1SS119 G.LIMIT
Q5 2SA1175 G.BUFF-3
Q7 DTC144ES G.RAS SW
Q8 2SA1175 B.BUFF-3
Q10 DTC144ES B.RAS SW
Q9 2SC2785 B.DRIVE
D15 1SS119 B.LIMIT
D14,16 1SS119 BIAS-1,2
Q40 2SC2785 LIMITER
Q11 2SC2230A BIAS-1
Q12 2SA1175 BIAS-2
TO BA-2
TO QA-14
TO BA-6
TO D-23
TO D-13
TO BA-5
TO CR-4
TO CG-4
TO CB-4
BB-1
BB-2
BB-3
BB-4
BB-5
BB-6
BB-7
BB-8
BB-9
+15V
GND
-15V
RED
GREEN
BLUE
A
B
RED (LINE)
GREEN (LINE)
BLUE (LINE)
+12V
BRT
PIC
R-RAS OFF/ON
G-RAS
B-RAS
DOT/HATCH
50/60
-HOT P
COMP SYNC
V RET P
LINE/RGB
H-RET-P
COMP-SYNC
V-RET-P
+12V
1k(R)
1k(G)
1k(B)
D11 1SS119 CLAMP-2
D1,2 1SS119 H.P SUP-1,2
D10 RD13ES-B2 PROTECTOR
Q20 2SC2785 H.P INV
IC6 HD14069UBP INV
IC11 HD14046BP H.PLL
IC12 HD14024BP H COUNTER
IC15 HD14081BP GATE-1
IC16 HD14082BP GATE-2
IC17 HD14013BP H BLK-1
Q16 2SC2785 H.P INV-1
Q17 2SC2785 H.P BUFF
Q36 2SC2785 Q37 2SA1175 SYNC BUFF-2,3
Q24 2SC2785 TOTAL ABL
D5 1SS119 TOTAL ABL
Q25 2SC2785 PEAK ABL
D6 1SS119 PEAK ABL
Q26 2SC2785 S.T ABL
D7 1SS119 S.T ABL
IC9 μPC4558C ABL
IC10 μPC4558C ABL
D3 1SS119 CLAMP-1
Q21 2SC2785 1k(R) BUFF
Q22 2SC2785 1k(G) BUFF
Q23 2SC2785 1k(B) BUFF
IC6 HD14069UBD INV
IC13 HD14046BP V.PLL
IC14 HD14040BP V.COUNTER
IC16 HD14082BP GATE-2
IC18 HD14013BP V BLK
IC7 HD14071BP V BLK
IC18 HD14013BP H.V BLK-2
IC7 HD14071BP V BLK
IC6 HD14069UBP INV
Q39 2SC2785 BLK BUFF
IC17 HD14013BP V BLK-1
IC7 HD14071BP V BLK
D17,18 1SS119 V.P DL-1,2
IC15 HD14081BP GATE-1
IC6 HD14069UBP INV
D4 1SS119 V.RESET SW
PHASE COMP
VCO
S1 BLK ON OFF
TP1 +12V
TP2 GND
TP3 -12V
TP4 R.IN
TP5 G.IN
TP6 B.IN
TP7 R.OUT
TP8 G.OUT
TP9 B.OUT
TP10 A
TP11 B
TP12 H BLK
TP13 V BLK
TP15 BLK
TP16 CLAMP
TP17 BRT
TP18 PIC
TP19 HD
TP20 VD
TP21 SYNC
R DRIVE
G DRIVE
B DRIVE
RV1 220
RV2 220
RV3 220
RV4 100k
12V
-12V
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BB (RGB PROCESS)

BB

[RGB PROCESS]

- Voltage table of IC3

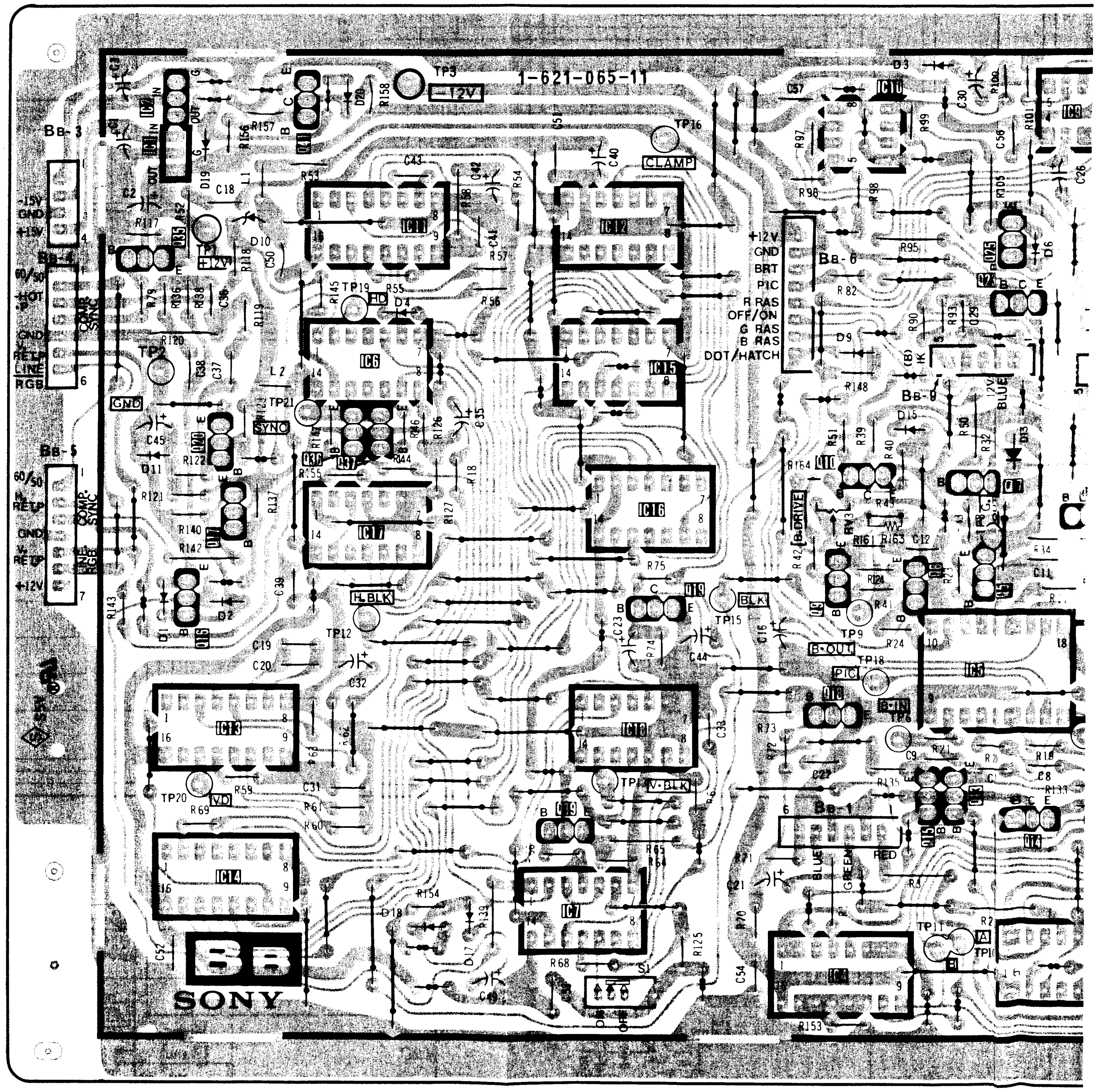
Mode Pin	PAL	NTSC 4.43	NTSC 3.58	SECAM
1	4.4	4.4	4.3	4.4
2	3.8	3.7	3.7	3.7
3	2.0	2.0	1.9	1.9
4	2.0	2.0	1.9	1.9
5	3.8	3.7	3.7	3.7
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	12.0	11.9	12.0	11.9
10	8.3	8.3	8.3	8.3
11	2.1	2.1	2.0	1.9
12	4.4	4.4	4.4	4.4
13	2.1	2.1	2.0	1.9
14	3.8	3.7	3.7	3.7
15	3.8	3.7	3.7	3.7
16	12.2	12.2	12.2	12.2

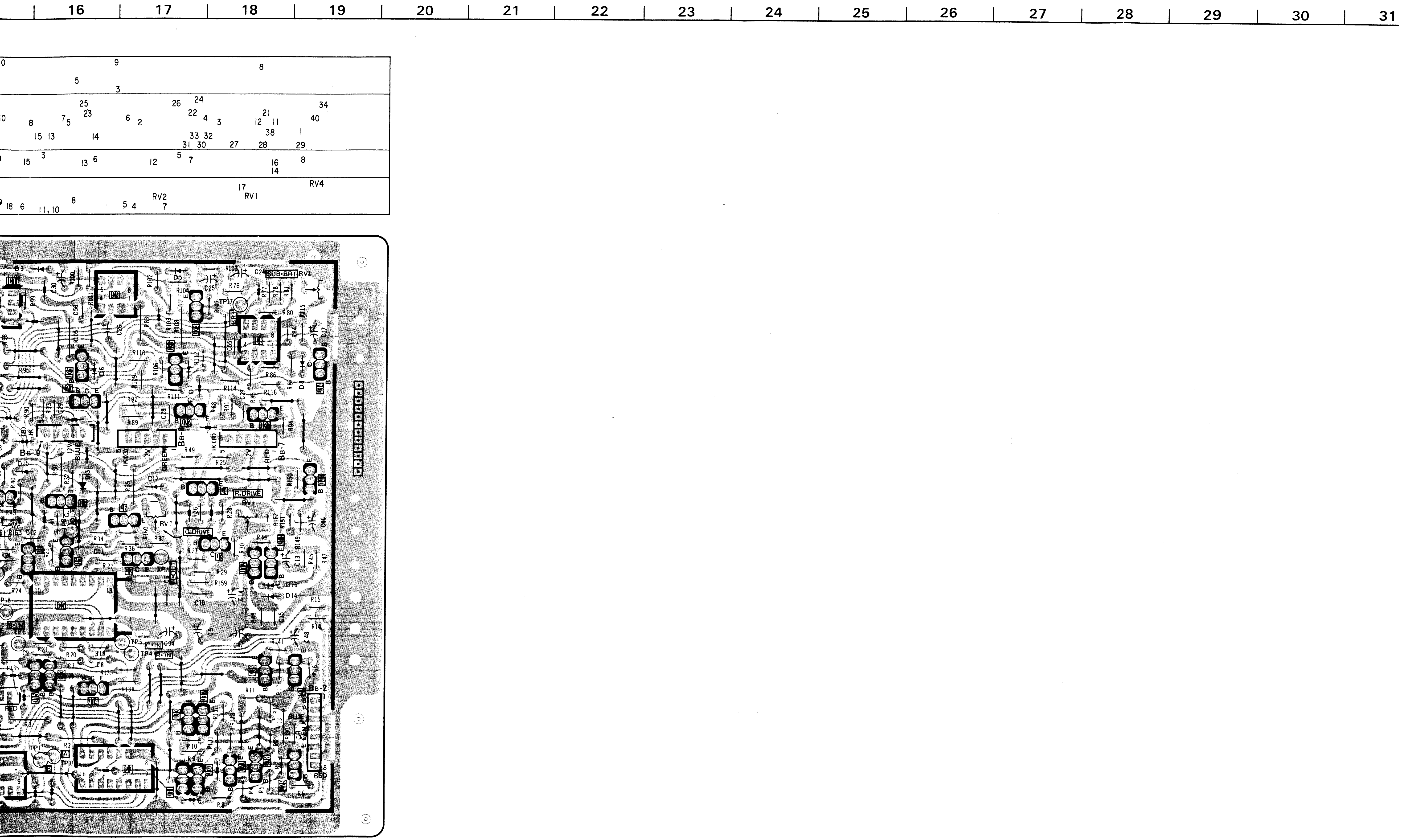
- Voltage table of IC4

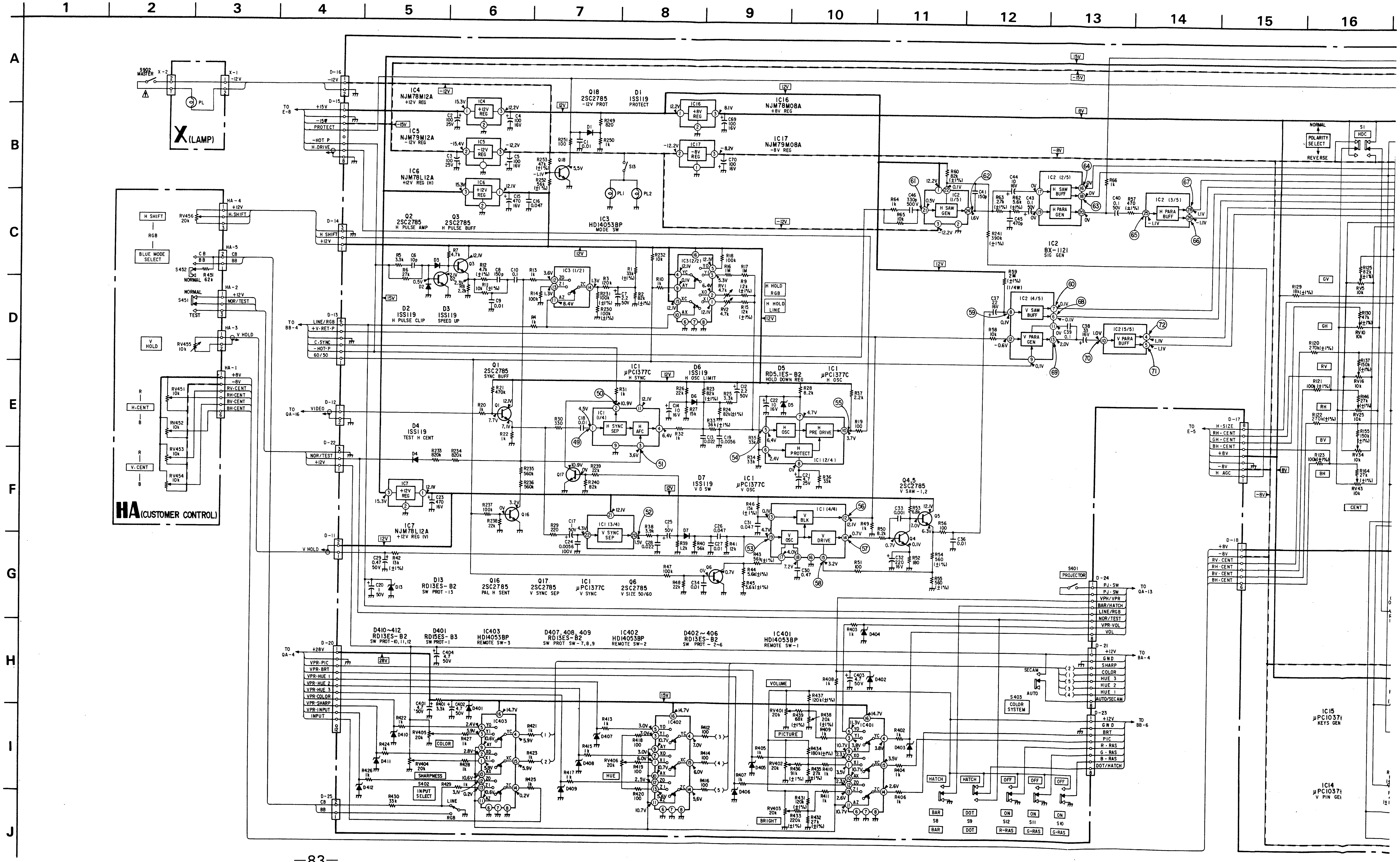
Mode Pin	PAL	NTSC 4.43	NTSC 3.58	SECAM
1	4.3	4.3	4.3	4.3
2	4.3	4.3	4.3	4.3
3	2.1	2.1	2.0	1.9
4	2.1	2.1	2.0	1.9
5	3.1	3.1	3.1	3.1
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	12.0	11.9	12.0	11.9
10	8.3	8.3	8.3	8.3
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	12.2	12.2	12.2	12.2

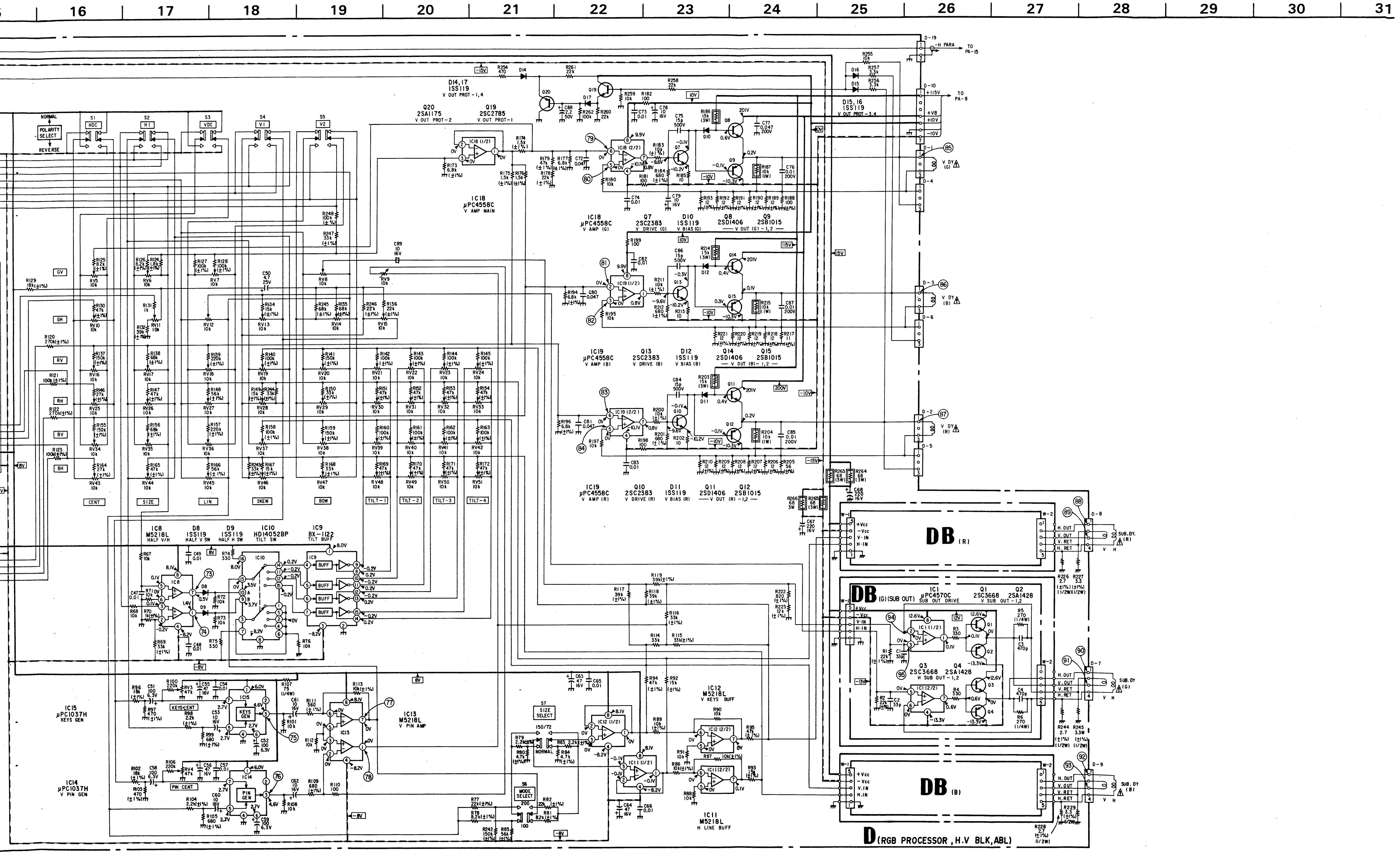
– BB board –

	10	11	12	13	14	15	16
IC		2, 1, 13, 14	11, 6, 17	7	12, 15, 18, 16	10, 4	5, 9, 3
Q		35, 16, 20, 17	41, 36, 37	39	19	9, 18, 10, 8	15, 13, 7, 5, 25, 23, 14
D		11, 1, 19, 2, 10	20, 4, 18	17		9, 15	3, 13, 6
ADJ TP		2, 1, 20	21, 19, 12, 3	13	16, 15	RV3, 9, 18, 6	11, 10, 8, 5


1-621-065-11
TP3
-12V
TP16
CLAMP
Bb-3
Bb-5
Bb-6
Bb-8
Bb-1
+12V
GND
BRT
PIC
R RAS
OFF/ON
G RAS
B RAS
DOT/HATCH
-15V
+15V
GND
60/50
COMP SYNC
RGB
TP19
HD
TP21
SYNC
H.BLK
BLK
TP15
TP12
B-OUT
TP9
TP18
B-IN
TP20
VD
V-BLK
BLUE
GREEN
RED
IC11
IC12
IC6
IC15
IC17
IC16
IC13
IC18
IC14
IC7
RV3
BB
SONY


16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
RV1
RV2
RV4
SUB·BRT
R.DRIVE
G.DRIVE
IK(R)
IK(G)
IK(B)
BLUE
GREEN
RED
12V
Bb-2
Bb-7
Bb-8
Bb-9
TP4
TP5
TP10
TP11
TP17
G·IN
R·IN
C10
R15
R47
D14
D16


X (LAMP)
HA (CUSTOMER CONTROL)
S902 MASTER
PL
H SHIFT
RGB
BLUE MODE SELECT
S452 NORMAL
S451 NORMAL TEST
V HOLD
H-CENT
V-CENT
RV456 20k
RV455 10k
RV451 10k
RV452 10k
RV453 10k
RV454 10k
IC4 NJM78M12A +12V REG
IC5 NJM79M12A -12V REG
IC6 NJM78L12A +12V REG (H)
IC7 NJM78L12A +12V REG (V)
Q2 2SC2785 H PULSE AMP
Q3 2SC2785 H PULSE BUFF
D2 1SS119 H PULSE CLIP
D3 1SS119 SPEED UP
Q18 2SC2785 -12V PROT
D1 1SS119 PROTECT
IC3 HD14053BP MODE SW
IC16 NJM78M08A +8V REG
IC17 NJM79M08A -8V REG
H HOLD RGB
H HOLD LINE
Q1 2SC2785 SYNC BUFF
IC1 μPC1377C H SYNC
D6 1SS119 H OSC LIMIT
D5 RD5.1ES-B2 HOLD DOWN REG
IC1 μPC1377C H OSC
D4 1SS119 TEST H CENT
D7 1SS119 V D SW
IC1 μPC1377C V OSC
Q4,5 2SC2785 V SAW-1,2
D13 RD13ES-B2 SW PROT-13
Q16 2SC2785 PAL H SENT
Q17 2SC2785 V SYNC SEP
IC1 μPC1377C V SYNC
Q6 2SC2785 V SIZE 50/60
IC2 BX-1121 SIG GEN
H SAW GEN
H SAW BUFF
H PARA GEN
H PARA BUFF
V SAW BUFF
V PARA GEN
V PARA BUFF
NORMAL POLARITY SELECT REVERSE
S1 HDC
GV GH RV RH BV BH
CENT
S401 PROJECTOR
D410~412 RD13ES-B2 SW PROT-10,11,12
D401 RD15ES-B3 SW PROT-1
IC403 HD14053BP REMOTE SW-3
D407,408,409 RD13ES-B2 SW PROT SW-7,8,9
IC402 HD14053BP REMOTE SW-2
D402~406 RD13ES-B2 SW PROT-2~6
IC401 HD14053BP REMOTE SW-1
COLOR
SHARPNESS
S402 INPUT SELECT
HUE
VOLUME
PICTURE
BRIGHT
S403 COLOR SYSTEM
SECAM AUTO
HATCH
BAR S8
DOT S9
OFF ON S12 R-RAS
OFF ON S11 G-RAS
OFF ON S10 G-RAS
IC15 μPC1037H KEYS GEN
IC14 μPC1037H V PIN GEN
TO E-8
TO BB-4
TO QA-16
TO QA-4
TO E-5
TO QA-13
TO BA-4
TO BB-6


16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
NORMAL
POLARITY SELECT
REVERSE
S1 HDC
S2 H1
S3 VDC
S4 V1
S5 V2
GV
GH
RV
RH
BV
BH
CENT
SIZE
LIN
SKEW
BOW
TILT-1
TILT-2
TILT-3
TILT-4
IC18 μPC4558C V AMP MAIN
Q20 2SA1175 V OUT PROT-2
Q19 2SC2785 V OUT PROT-1
D14,17 1SS119 V OUT PROT-1,4
D15,16 1SS119 V OUT PROT-3,4
IC18 μPC4558C V AMP (G)
Q7 2SC2383 V DRIVE (G)
D10 1SS119 V BIAS (G)
Q8 2SD1406
Q9 2SB1015
V OUT (G)-1,2
IC19 μPC4558C V AMP (B)
Q13 2SC2383 V DRIVE (B)
D12 1SS119 V BIAS (B)
Q14 2SD1406
Q15 2SB1015
V OUT (B)-1,2
IC19 μPC4558C V AMP (R)
Q10 2SC2383 V DRIVE (R)
D11 1SS119 V BIAS (R)
Q11 2SD1406
Q12 2SB1015
V OUT (R)-1,2
TO PA-15
TO PA-8
H PARA
+115V
+VB
+10V
-10V
V DY (G)
V DY (B)
V DY (R)
IC8 M5218L HALF V/H
D8 1SS119 HALF V SW
D9 1SS119 HALF H SW
IC10 HD14052BP TILT SW
IC9 BX-1122 TILT BUFF
BUFF
IC15 μPC1037H KEYS GEN
KEYS CENT
KEYS GEN
IC14 μPC1037H V PIN GEN
PIN CENT
PIN GEN
IC13 M5218L V PIN AMP
S7 SIZE SELECT
150/72
NORMAL
S6 MODE SELECT
IC12 M5218L V KEYS BUFF
IC11 M5218L H LINE BUFF
DB (R)
DB (G) (SUB OUT)
DB (B)
IC1 μPC4570C SUB OUT DRIVE
Q1 2SC3668
Q2 2SA1428
V SUB OUT-1,2
Q3 2SC3668
Q4 2SA1428
H SUB OUT-1,2
+Vcc
-Vcc
V-IN
H-IN
H.OUT
V.OUT
V.RET
H.RET
SUB.DY. (R)
SUB.DY. (G)
SUB.DY. (B)
D (RGB PROCESSOR, H.V BLK, ABL)

D [RGB PROCESSOR, H.V BLK, ABL]

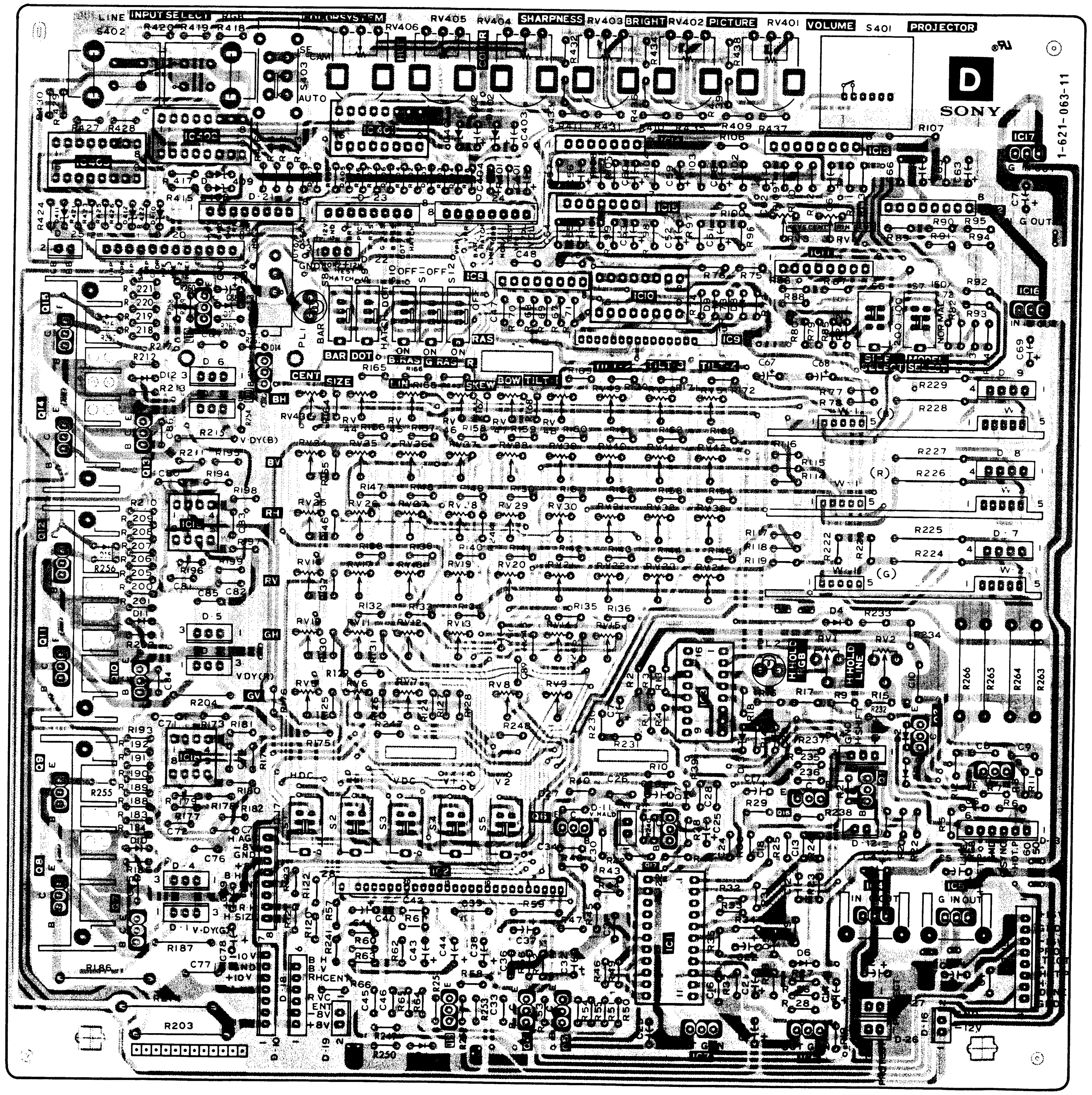
HA [CUSTOMER CONTROL]

DB [SUB OUT]

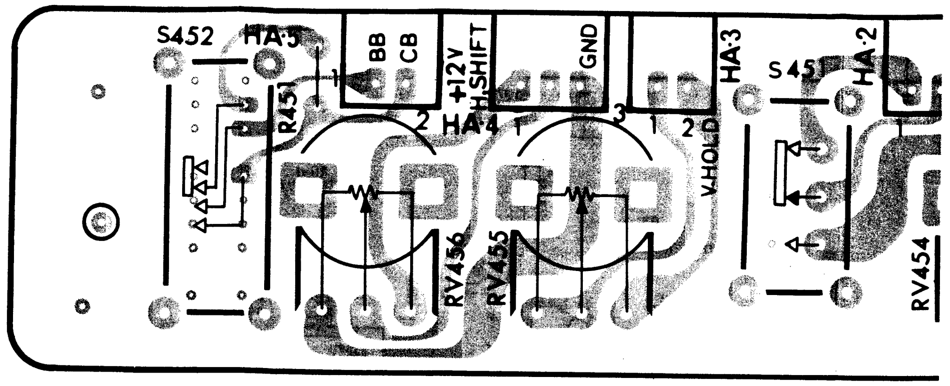
X [LAMP]

– D board –

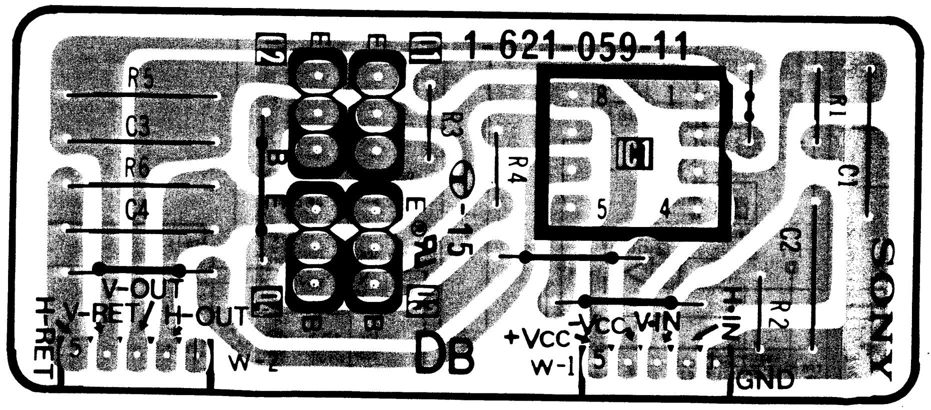
	2	3	4	5	6	7	8	9
IC	403	402, 19, 18	401	2, 8	14, 15, 10, 9, 1	3, 7, 13, 11,6	4, 12, 5	17,16
Q	15, 14, 12, 11, 9, 8	13, 10, 7, 19, 20		18, 6, 4, 5	17	16	1, 2	3
D	411, 16, 15, 412	12, 11, 10, 410, 409, 408, 17, 14	407, 405, 406	403, 1, 401, 404, 402	7	9, 8, 13, 5, 6, 4	2, 3	
ADJ			43, 34, 25, 16, 10, 5, 44, 35, 26, 17, 11, 6, 406, 45, 36, 27, 18, 12, 7	405, 46, 37, 28, 19, 13, 404, 47, 38, 29, 20, 8, 48, 39, 30, 21, 14, 9	403, 49, 40, 31, 22, 15, 50, 41, 32, 23, 402	51, 42, 33, 24, 401, 3, 4, 1	2	


LINE
INPUT SELECT
RGB
COLORSYSTEM
RV406
RV405
RV404
SHARPNESS
RV403
BRIGHT
RV402
PICTURE
RV401
VOLUME
S401
PROJECTOR
S402
D
SONY
1-621-063-11
R420
R419
R418
R409
R107
IC17
G OUT
IC16
RAS
BAR
DOT
CENT
SIZE
SKEW
BOW
TILT
(R)
(G)
R203
+12V

– HA board –


S452
HA-5
BB
CB
+12V
H.SHIFT
GND
HA-3
S451
HA-2
R451
HA-4
RV456
RV455
V.HOLD
RV454

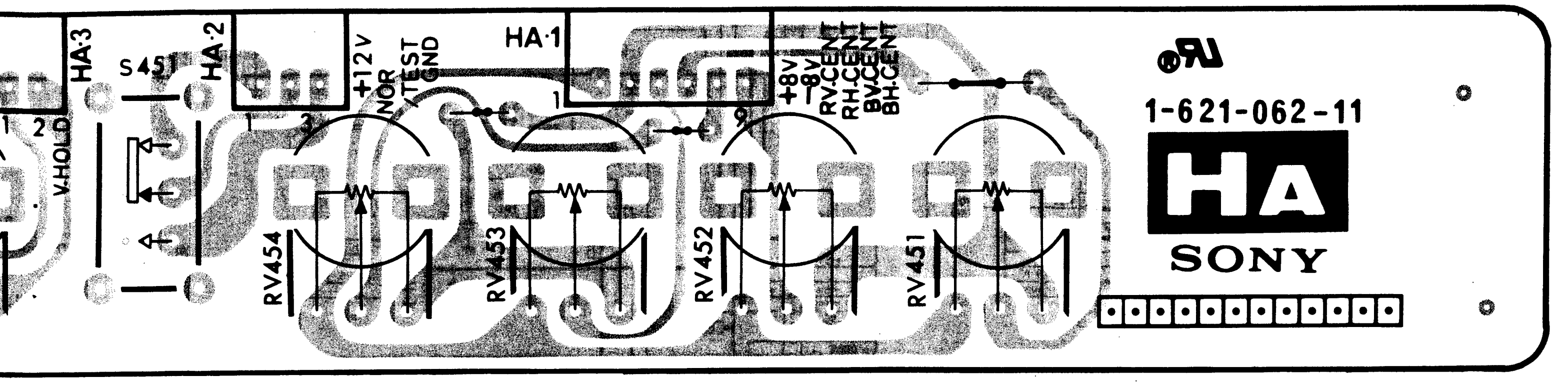
– DB board –


1-621-059-11
R5
C3
R6
C4
R3
R4
IC1
C1
C2
R2
R1
V-OUT
H-V-RET
H-OUT
H-RET
W-2
DB
+VCC
-VCC
VIN
W-1
H-IN
GND
SONY

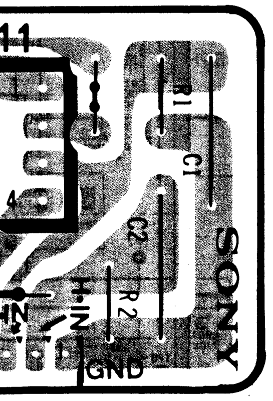
- ▨ : Conductor side pattern
- ░ : Component side pattern

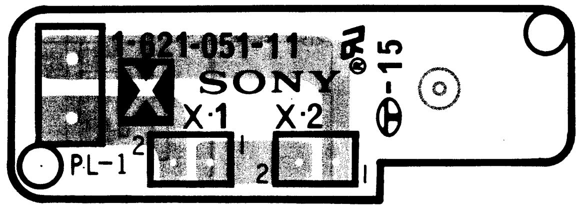
T]

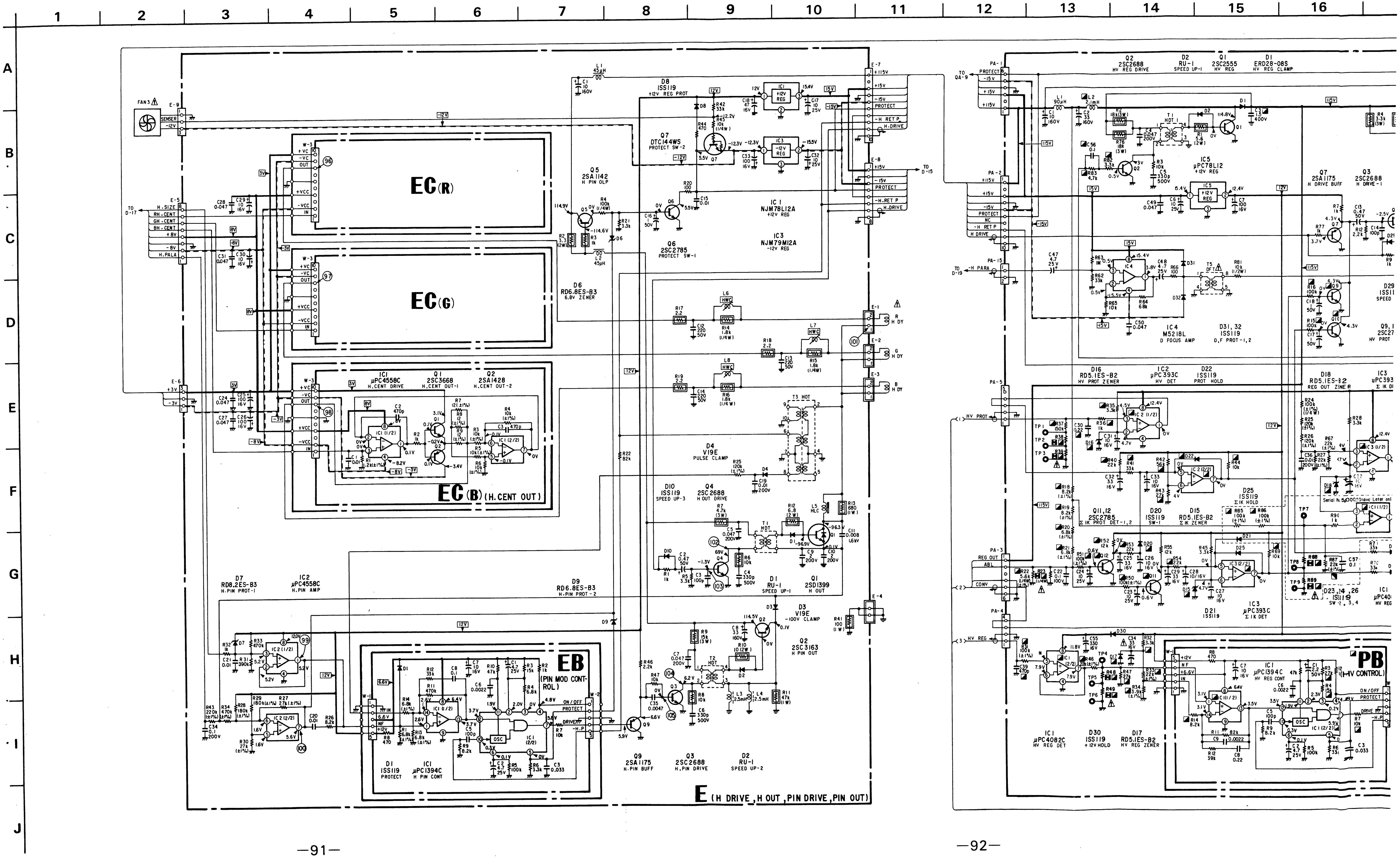
X [LAMP]

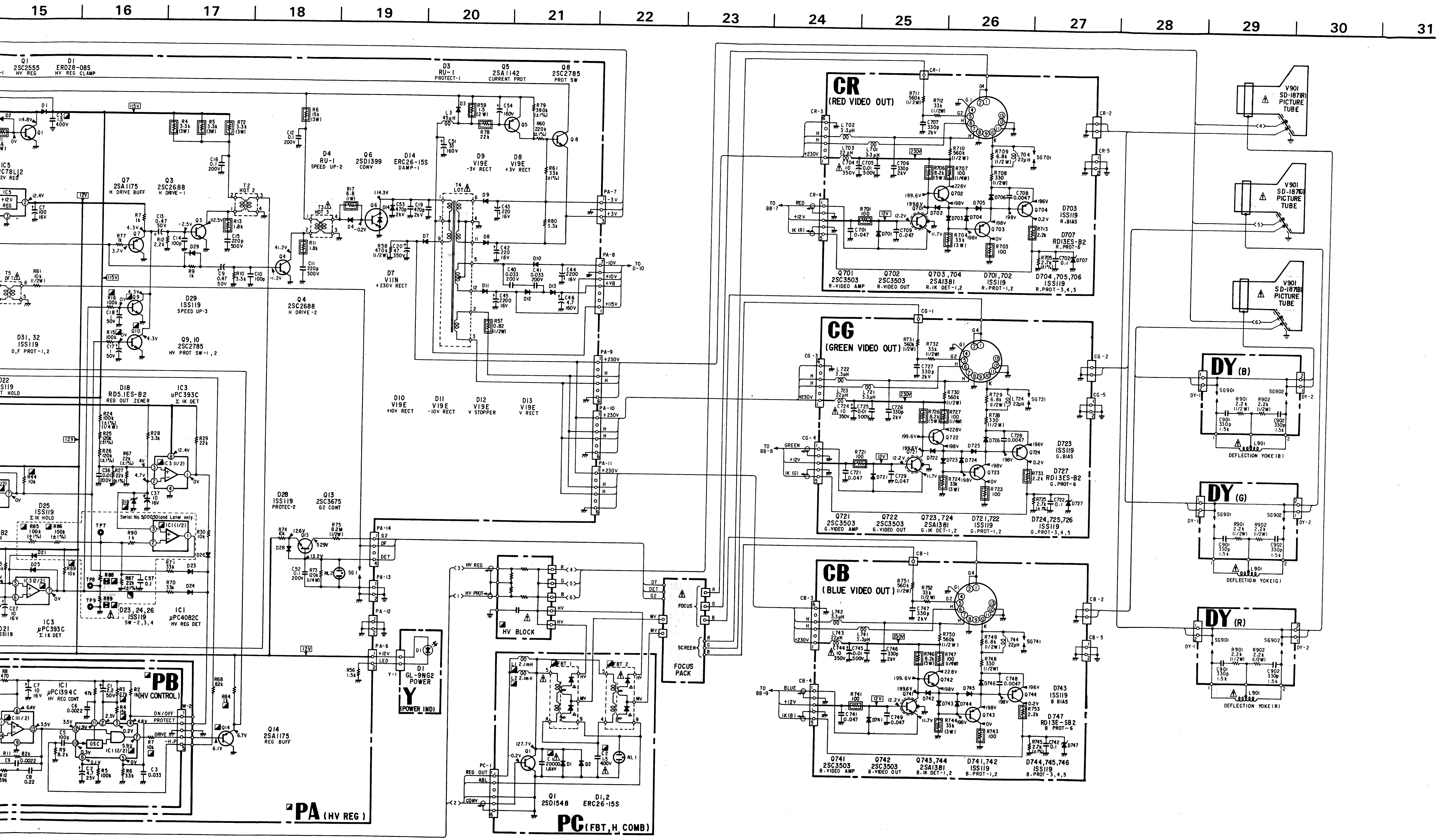

HA·3
S451
HA·2
+12V
NOR
TEST
GND
HA·1
+8V
-8V
RV-CENT
RH-CENT
BV-CENT
BH-CENT
1-621-062-11
HA
SONY
V.HOLD
RV454
RV453
RV452
RV451

– X board –


11
R1
C1
C2
R2
H-IN
GND
SONY


1-621-051-11
SONY
X
X·1
X·2
PL-1
2
1
-15


EC(R)
EC(G)
EC(B) (H.CENT OUT)
EB (PIN MOD CONTROL)
E (H DRIVE, H OUT, PIN DRIVE, PIN OUT)
PB (HV CONTROL)
FAN3
IC1 µPC4558C H.CENT DRIVE
Q1 2SC3668 H.CENT OUT-1
Q2 2SA1428 H.CENT OUT-2
Q5 2SA1142 H PIN OLP
Q7 DTC144WS PROTECT SW-2
Q6 2SC2785 PROTECT SW-1
D8 1SS119 +12V REG PROT
IC1 NJM78L12A +12V REG
IC3 NJM79M12A -12V REG
D6 RD6.8ES-B3 6.8V ZENER
D4 V19E PULSE CLAMP
D10 1SS119 SPEED UP-3
Q4 2SC2688 H OUT DRIVE
D1 RU-1 SPEED UP-1
Q1 2SD1399 H OUT
D7 RD8.2ES-B3 H.PIN PROT-1
IC2 µPC4558C H.PIN AMP
D9 RD6.8ES-B3 H.PIN PROT-2
D3 V19E -100V CLAMP
Q2 2SC3163 H PIN OUT
D1 1SS119 PROTECT
IC1 µPC1394C H PIN CONT
Q9 2SA1175 H.PIN BUFF
Q3 2SC2688 H.PIN DRIVE
D2 RU-1 SPEED UP-2
Q2 2SC2688 HV REG DRIVE
D2 RU-1 SPEED UP-1
Q1 2SC2555 HV REG
D1 ERD28-08S HV REG CLAMP
IC5 µPC78L12 +12V REG
Q7 2SA1175 H DRIVE BUFF
Q3 2SC2688 H DRIVE-1
IC4 M5218L D FOCUS AMP
D31, 32 1SS119 D,F PROT-1,2
D16 RD5.1ES-B2 HV PROT ZENER
IC2 µPC393C HV DET
D22 1SS119 PROT HOLD
D18 RD5.1ES-B2 REG OUT ZENER
Q11, 12 2SC2785 Σ IK PROT DET-1, 2
D20 1SS119 SW-1
D15 RD5.1ES-B2 Σ IK ZENER
D25 1SS119 Σ IK HOLD
D21 1SS119
IC3 µPC393C Σ IK DET
D23, 24, 26 1SS119 SW-2, 3, 4
IC1 µPC4082C HV REG DET
D30 1SS119 +12V HOLD
D17 RD5.1ES-B2 HV REG ZENER
IC1 µPC1394C HV REG CONT
TO D-17
TO D-15
TO QA-9
TO D-19
H.SIZE
RH.CENT
GH.CENT
BH.CENT
H.PALA
R H DY
G H DY
B H DY
H.RET P
H.DRIVE
PROTECT
HV PROT
REG OUT
ABL
CONV
HV REG
-H PARA
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J


15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
Q1 2SC2555 HV REG
D1 ERD28-08S HV REG CLAMP
D3 RU-1 PROTECT-1
Q5 2SA1142 CURRENT PROT
Q8 2SC2785 PROT SW
D4 RU-1 SPEED UP-2
Q6 2SD1399 CONV
D14 ERC26-15S DAMP-1
D9 V19E -3V RECT
D8 V19E +3V RECT
Q7 2SA1175 H DRIVE BUFF
Q3 2SC2688 H DRIVE-1
T2 HDT 2
T3 HDT 3
T4 LOT
D7 V11N +230V RECT
Q4 2SC2688 H DRIVE-2
D29 1SS119 SPEED UP-3
Q9, 10 2SC2785 HV PROT SW-1, 2
D31, 32 1SS119 D,F PROT-1, 2
RD18 RD5.1ES-B2 REG OUT ZENER
IC3 μPC393C Σ IK DET
D10 V19E +10V RECT
D11 V19E -10V RECT
D12 V19E V STOPPER
D13 V19E V RECT
D25 1SS119 Σ IK HOLD
Serial No.500050and Later only
D28 1SS119 PROTEC-2
Q13 2SC3675 G2 CONT
D23, 24, 26 1SS119 SW-2, 3, 4
IC1 μPC4082C HV REG DET
IC3 μPC393C Σ IK DET
IC1 μPC1394C HV REG CONT
PB (HV CONTROL)
Q14 2SA1175 REG BUFF
PA (HV REG)
D1 GL-9NG2 POWER
Y (POWER IND)
HV BLOCK
PC (FBT, H COMB)
Q1 2SD1548
D1, 2 ERC26-15S
FOCUS PACK
FOCUS
SCREEN
CR (RED VIDEO OUT)
CG (GREEN VIDEO OUT)
CB (BLUE VIDEO OUT)
TO BB-7
TO BB-8
TO BB-9
RED
GREEN
BLUE
Q701 2SC3503 R.VIDEO AMP
Q702 2SC3503 R.VIDEO OUT
Q703, 704 2SA1381 R.IK DET-1, 2
D701, 702 1SS119 R.PROT-1, 2
D704, 705, 706 1SS119 R.PROT-3, 4, 5
D703 1SS119 R.BIAS
D707 RD13ES-B2 R.PROT-6
Q721 2SC3503 G.VIDEO AMP
Q722 2SC3503 G.VIDEO OUT
Q723, 724 2SA1381 G.IK DET-1, 2
D721, 722 1SS119 G.PROT-1, 2
D724, 725, 726 1SS119 G.PROT-3, 4, 5
D723 1SS119 G.BIAS
D727 RD13ES-B2 G.PROT-6
Q741 2SC3503 B.VIDEO AMP
Q742 2SC3503 B.VIDEO OUT
Q743, 744 2SA1381 B.IK DET-1, 2
D741, 742 1SS119 B.PROT-1, 2
D744, 745, 746 1SS119 B.PROT-3, 4, 5
D743 1SS119 B BIAS
D747 RD13E-SB2 B PROT-6
V901 SD-187(R) PICTURE TUBE
V901 SD-187(G) PICTURE TUBE
V901 SD-187(B) PICTURE TUBE
DY (B)
DEFLECTION YOKE (B)
DY (G)
DEFLECTION YOKE (G)
DY (R)
DEFLECTION YOKE (R)

E [H. DRIVE, H. OUT, PIN DRIVE, PIN OUT]

CR [RED VIDEO OUT]

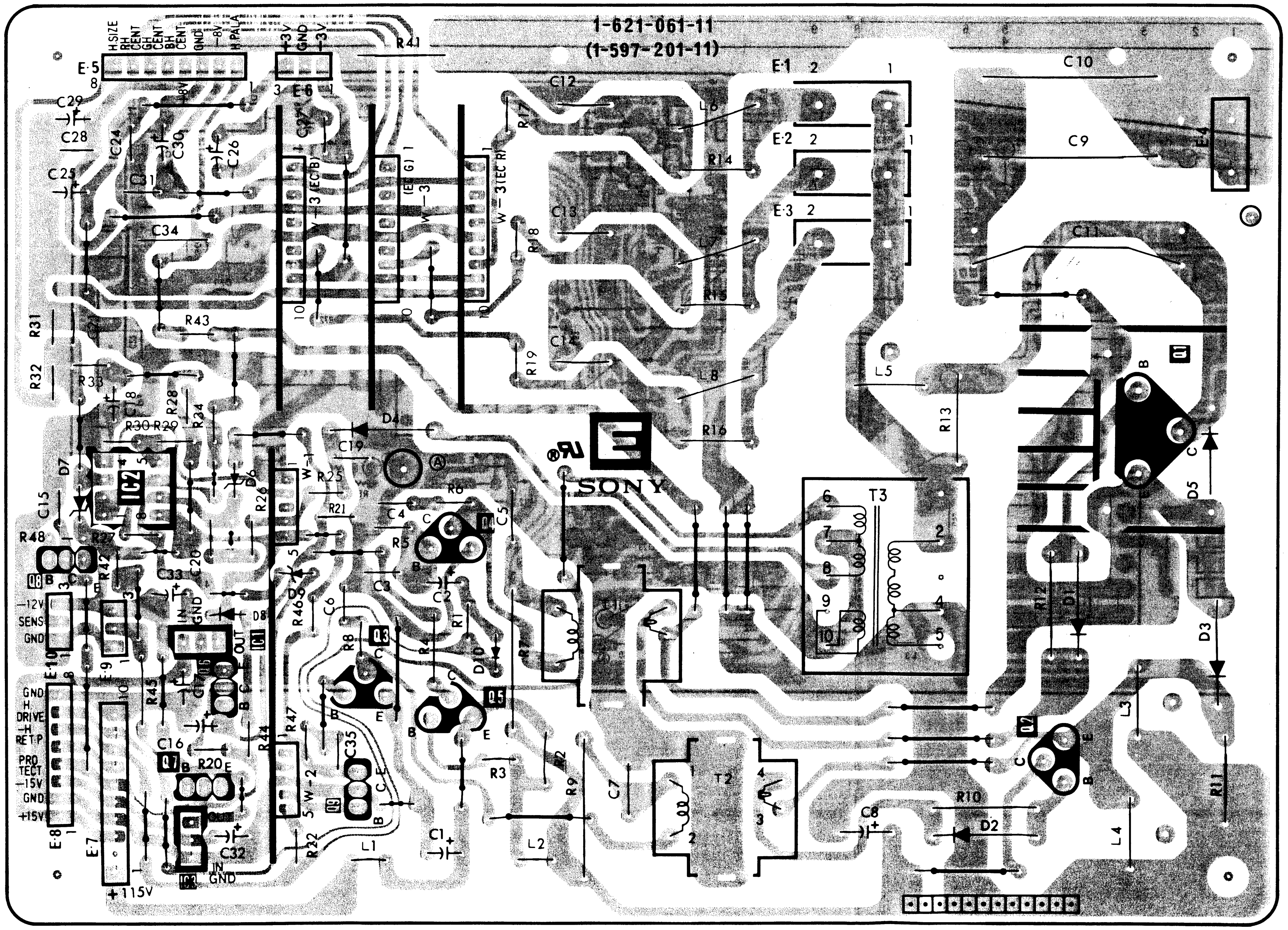
EB [PIN MOD CONTROL]

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

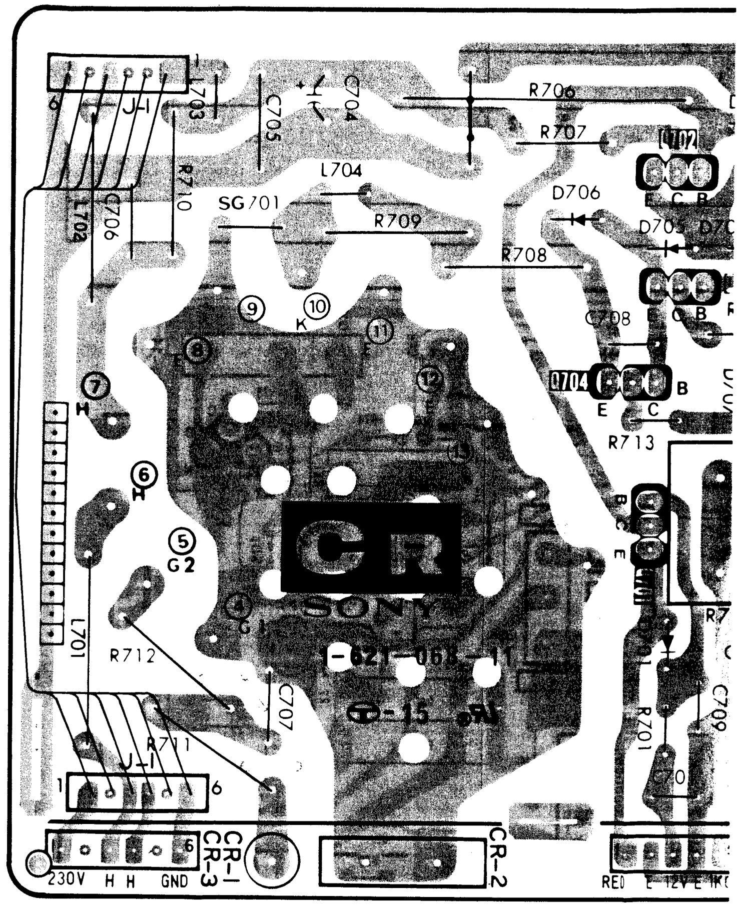
A B C D E F G H I J

– E board –

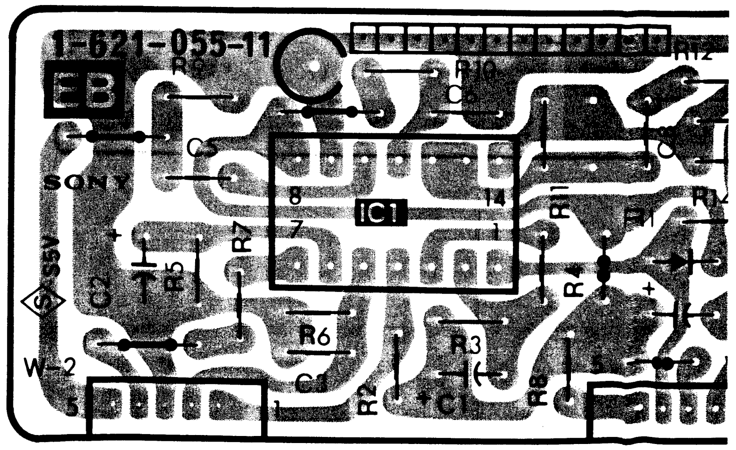
	1	2	3	4	5	6	7	8	9	10	11
IC		2	1 3								
Q			7 6	3 9	4 5					2	1
D		7	6 8	4 9	10				2	1	3

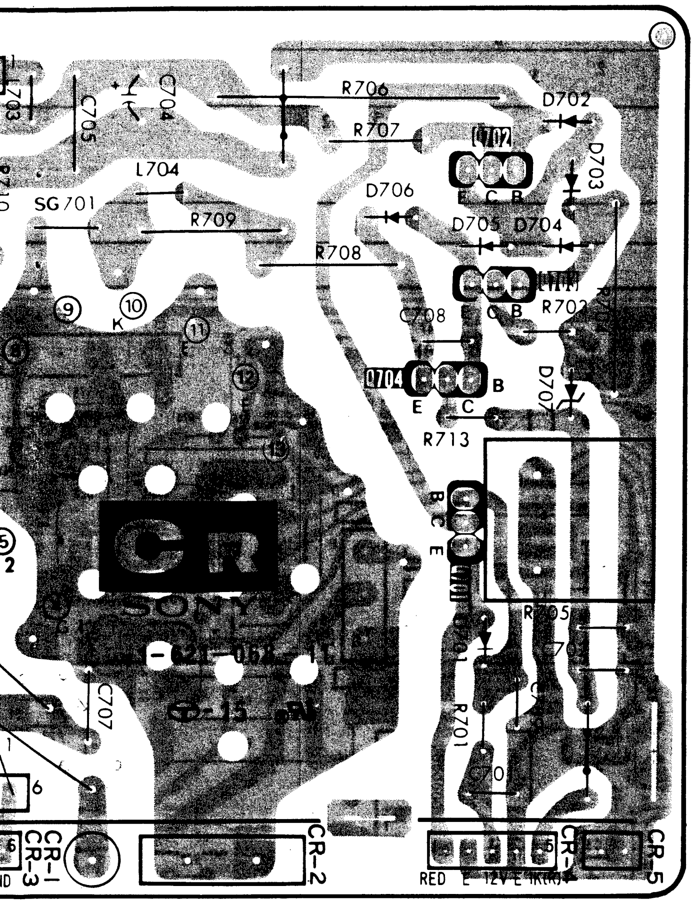

1-621-061-11
(1-597-201-11)
E-5
H SIZE
RH CENT
GH CENT
BH CENT
GND
-8V
H PALA
E-6
3V
GND
-3V
E-1
E-2
E-3
E-4
C10
C9
C11
C12
C13
C14
R41
R14
R15
R16
R17
R18
R19
L5
L6
L7
L8
R13
C29
C28
C24
C30
C26
C25
C31
C34
C27
R31
R32
R33
R43
C18
R28
R30
R29
R24
IC2
D7
C15
R48
R27
R42
Q6
C33
C20
D8
IC1
IN
OUT
GND
R26
R25
R21
W-1
D4
C19
D6
D9
R46
R5
R6
C4
C5
Q4
C3
C2
C6
R8
Q3
R4
R1
D10
Q5
R47
C35
W-2
R44
R43
C16
R20
Q7
Q8
C32
E7
E8
E9
E10
-12V
SENS
GND
H DRIVE
-H
RET-P
PROTECT
-15V
GND
+15V
+115V
R32
L1
C1
R3
R2
R9
L2
C7
T1
T2
C8
R10
D2
T3
R12
D1
D3
D5
Q1
Q2
L3
L4
R11
B
C
E
SONY
Ⓐ

– CR board –

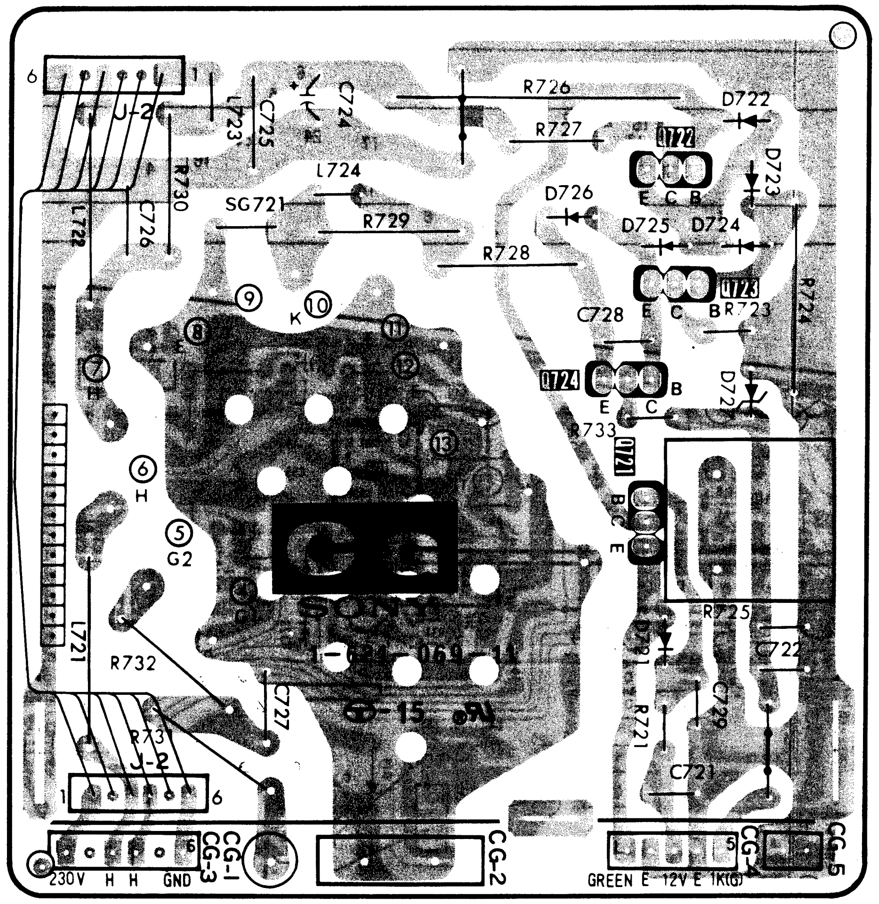

L703
C705
C704
R706
R707
Q702
L704
SG701
R709
R710
L702
C706
D706
D705
R708
C708
Q704
R713
L701
R712
C707
R711
J-1
R701
C709
CR
SONY
1-621-053-11
230V
H
GND
CR-1
CR-3
CR-2
RED
12V
E
B
C
⑨
⑩
⑪
⑧
⑦
⑥
⑤
④
⑫
K
H
G2

– EB board –

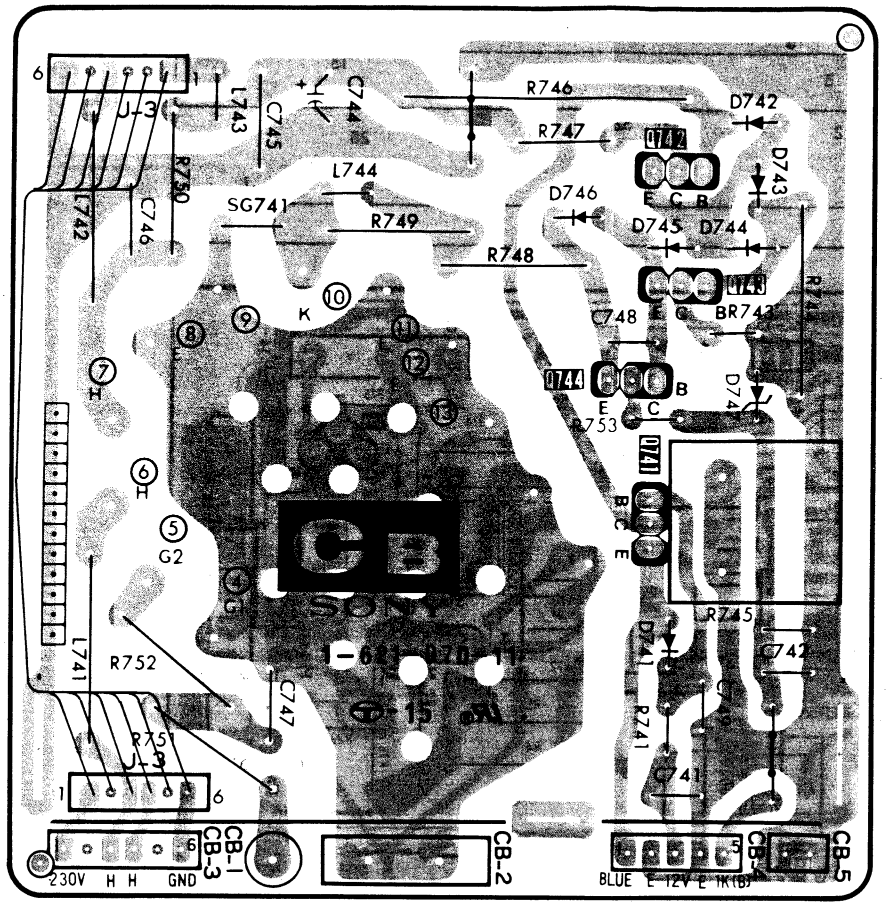

1-621-055-11
EB
SONY
R10
R12
C5
IC1
8
14
7
R11
R7
R5
C2
R6
R3
R2
R8
C1
R4
W-2
55V


R706
R707
D702
D703
C704
C705
L704
SG701
R709
R708
D706
D705
D704
C708
R702
Q704
D707
R713
CR
SONY
C707
R701
CR-1
CR-3
CR-2
CR-5
RED E 12V E 1K(R)

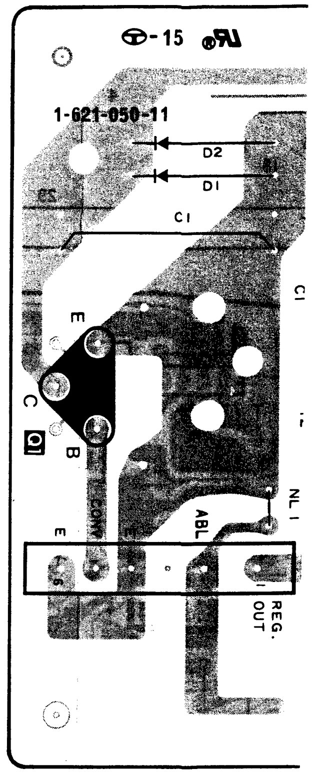
– CG board –

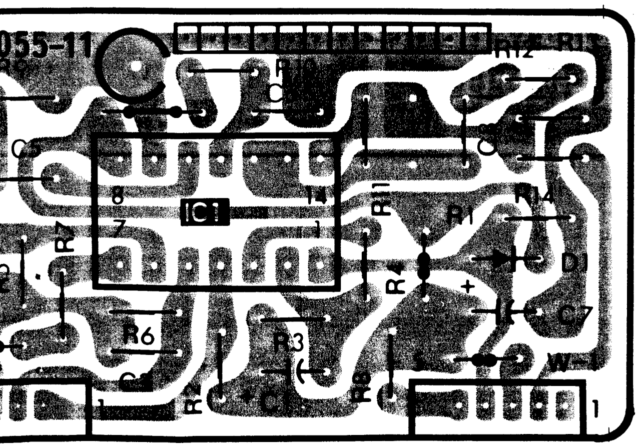

J-2
C725
C724
L723
R730
R726
R727
D722
Q722
D723
L724
SG721
R729
D726
D725
D724
R728
C726
L722
C728
Q723
R723
R724
Q724
D727
R733
Q721
H
G2
CG
SONY
1-621-069-11
R732
L721
C727
R731
R725
C722
D721
R721
C729
C721
230V H H GND
CG-1
CG-3
CG-2
CG-5
GREEN E 12V E 1K(G)

– CB board –

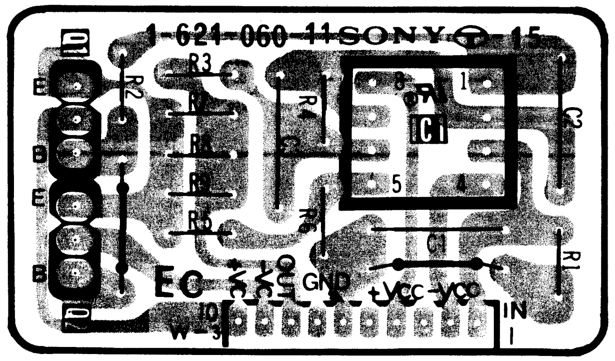

J-3
L743
C745
C744
R750
R746
R747
D742
Q742
D743
L744
SG741
R749
D746
D745
D744
R748
C746
L742
C748
Q743
R743
R744
Q744
D747
R753
Q741
H
G2
CB
SONY
1-621-070-11
R752
L741
C747
R751
R745
C742
D741
R741
C741
230V H H GND
CB-1
CB-3
CB-2
CB-5
BLUE E 12V E 1K(B)

– PC board –

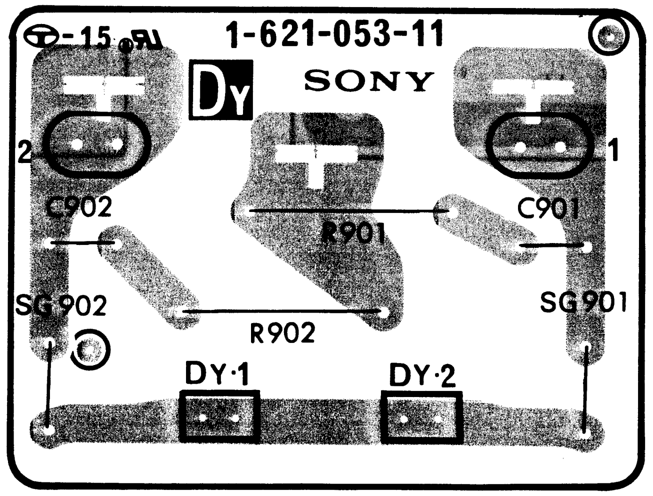

1-621-050-11
D2
D1
C1
E
C
B
Q1
ABL
REG. OUT


055-11
R12
R11
IC1
8
14
7
1
R14
R1
D1
C7
R7
R4
R6
R3
C1
W-1
1

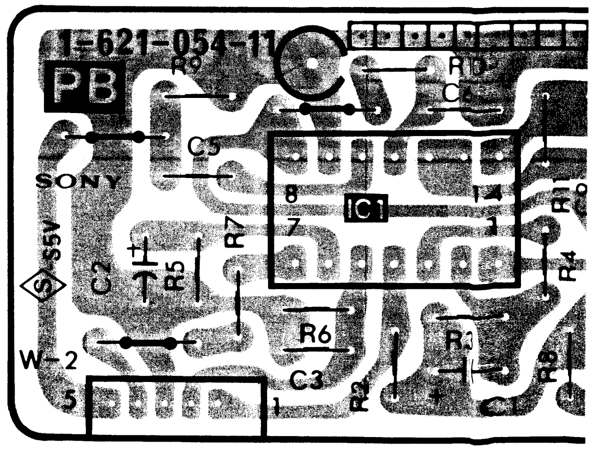
– EC board –

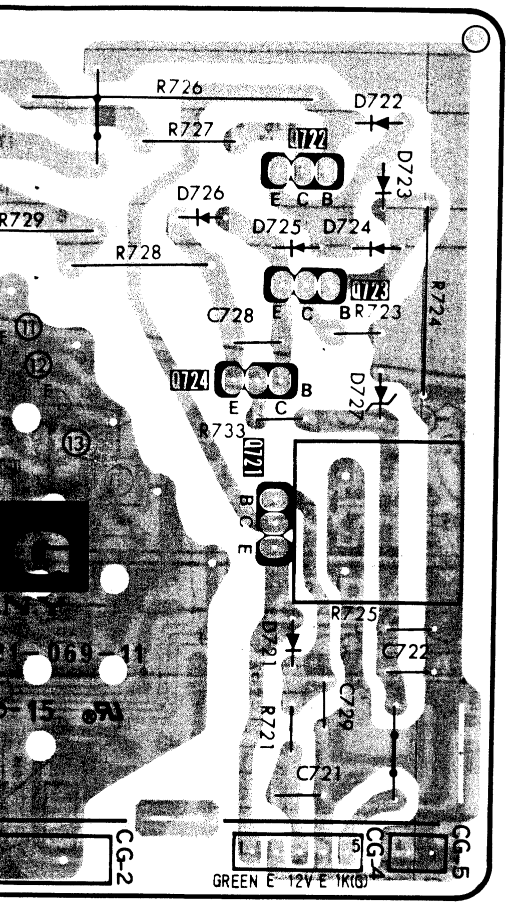

1-621-060-11 SONY
Q1
R2
R3
R4
R5
IC1
8
5
C1
R1
C3
EC
GND
+Vcc
-Vcc
IN
W-3

– DY board –

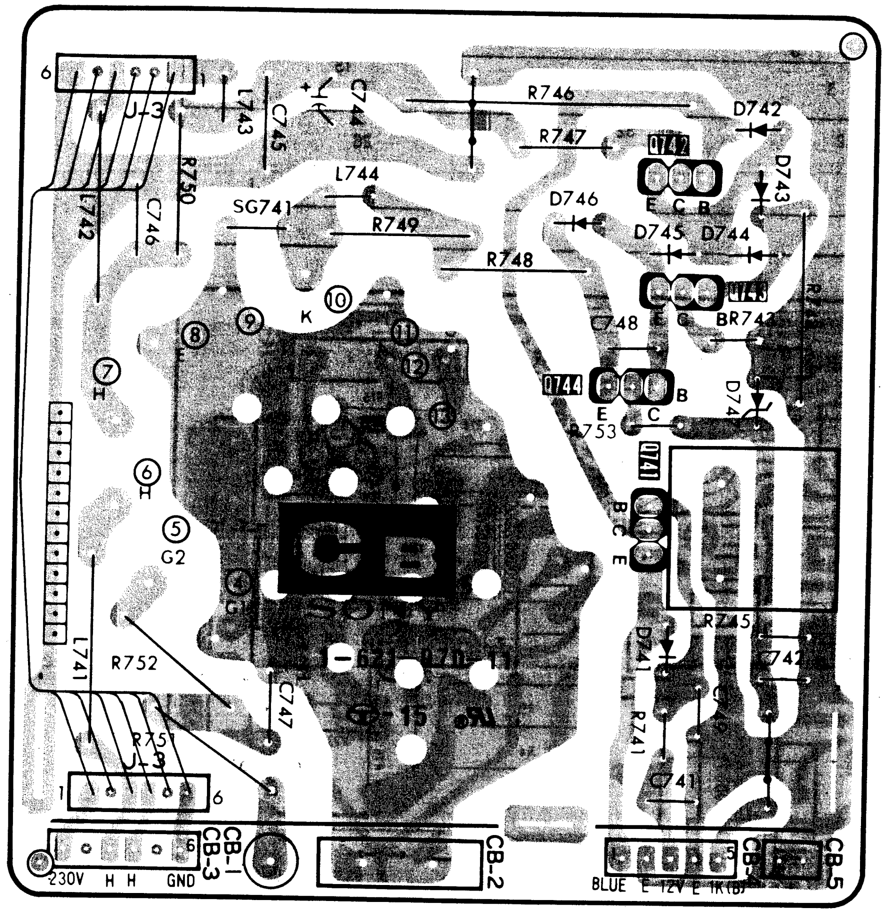

1-621-053-11
SONY
DY
2
1
C902
C901
R901
R902
SG902
SG901
DY·1
DY·2

– PB board –

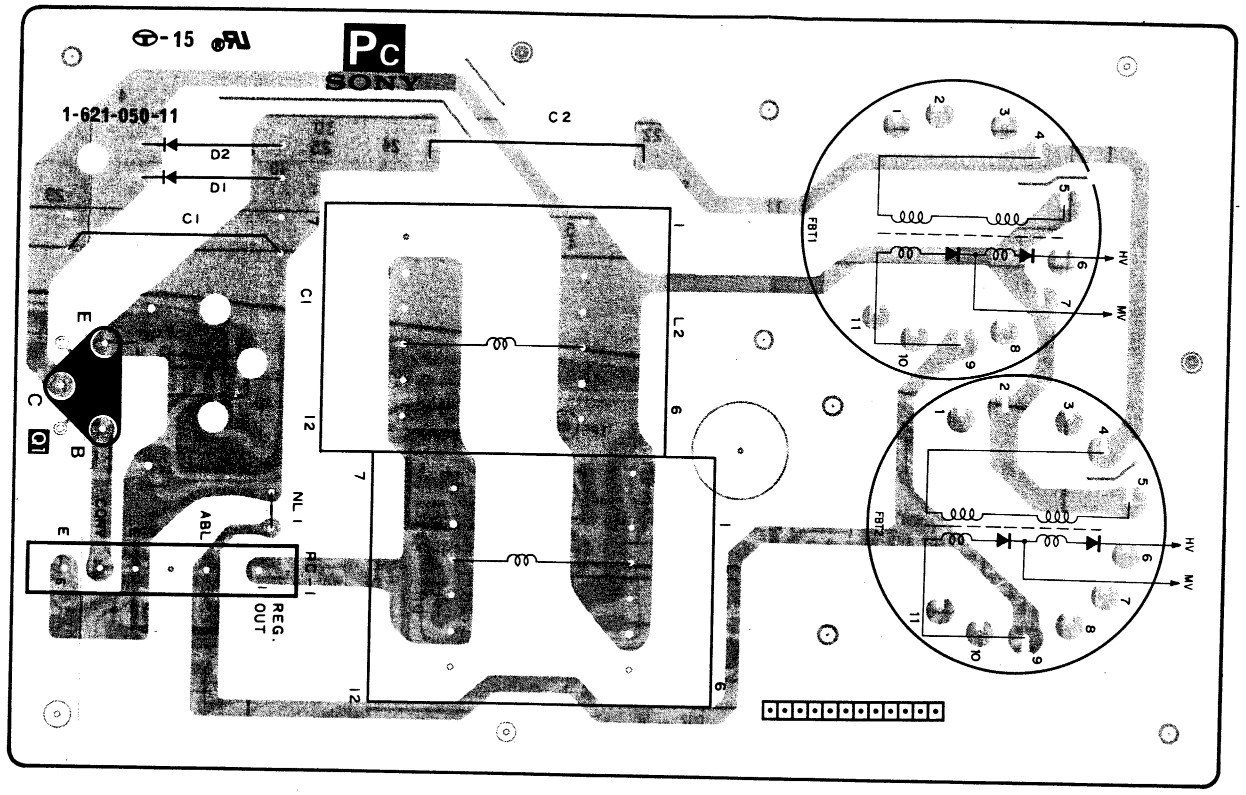

1-621-054-11
PB
SONY
R8
R10
C5
C6
IC1
8
14
7
1
S5V
C2
R5
R7
R6
R3
C3
R2
R4
R1
W-2
5
1

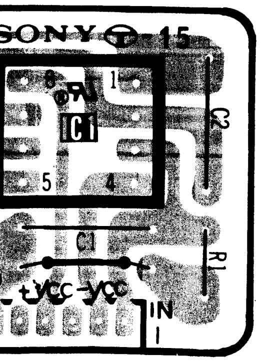

R726
D722
R727
Q722
E C B
D723
D726
R729
D725
D724
R728
Q723
E C
BR723
R724
C728
Q724
B
E C
R733
D727
Q721
B C E
R725
C722
R721
C729
C721
069-11
CG-2
GREEN E 12V E 1K(G)
5
CG-4
CG-5

– CB board –

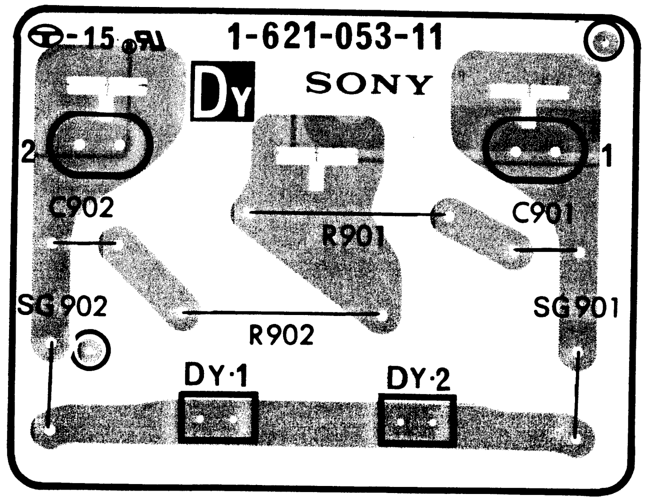

6
1
J-3
L743
C745
C744
R746
D742
R747
Q742
E C B
D743
R750
L742
C746
L744
SG741
R749
D746
D745
D744
R748
Q743
BR742
⑨
K
⑩
⑧
⑪
⑫
⑦
H
⑬
C748
Q744
E
B
C
R753
D741
⑥
H
⑤
G2
CB
Q741
B
C
E
R745
C742
L741
R752
C747
-621-070-11
-15
R751
J-3
D741
R741
C741
1
6
CB-1
CB-3
230V H H GND
CB-2
BLUE E 12V E 1K(B)
5
CB-4
CB-5

– PC board –

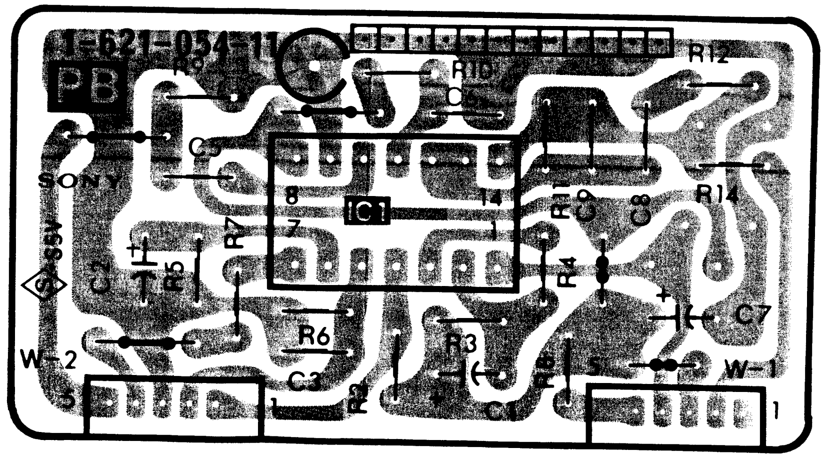

-15
Pc
SONY
1-621-050-11
C2
D2
D1
C1
C1
L2
E
C
B
Q1
12
6
7
NL 1
ABL
E
RC 1
REG. OUT
12
6
FBT1
HV
MV
FBT2
HV
MV
1
2
3
4
5
6
7
8
9
10
11


SONY
-15
IC1
8
1
5
4
C3
C1
R1
+VCC -VCC
IN

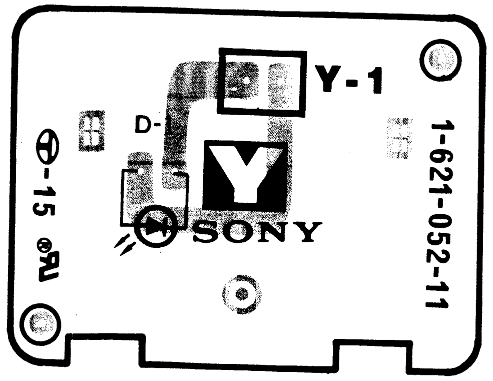
– DY board –


-15
1-621-053-11
DY
SONY
2
1
C902
C901
R901
SG902
R902
SG901
DY-1
DY-2

– PB board –


1-621-054-11
PB
R10
R12
C5
SONY
8
14
7
1
IC1
R11
C9
C8
R14
SG1
C2
R5
R7
R4
C7
R6
R3
W-2
W-1
C3
C1
3
1
5
1

– Y board –

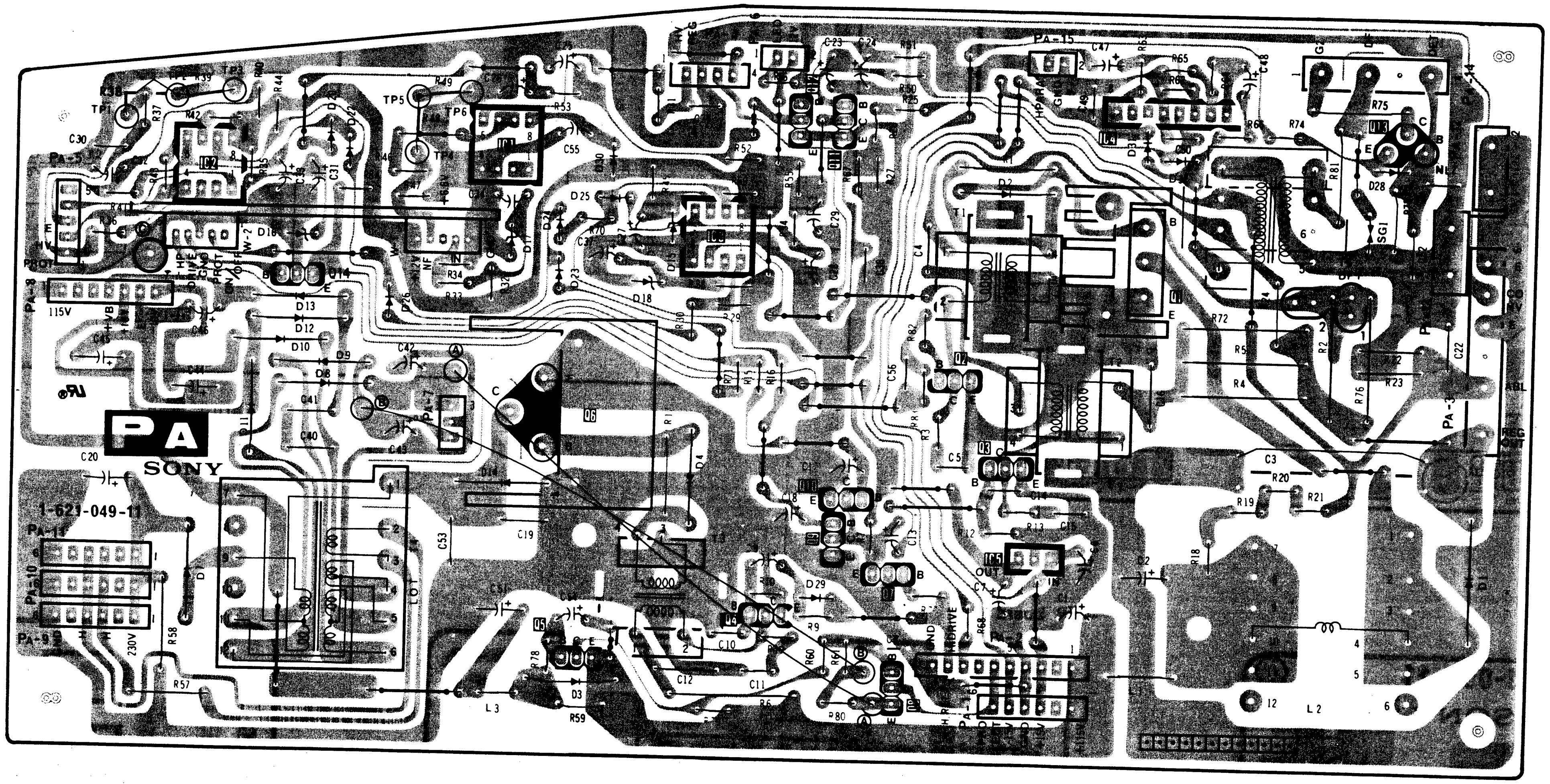

Y-1
D-1
-15
Y
SONY
1-621-052-11

PA

[HV REG]

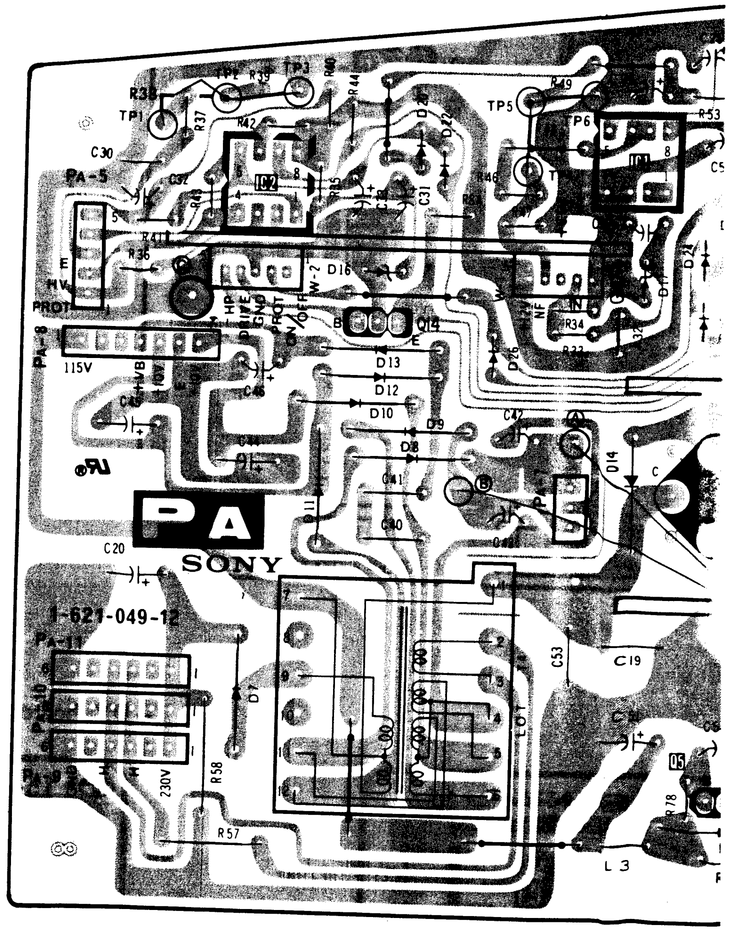
– PA board (Serial No. 5,000,001 ~ 5,000,300) –

IC	2, 1, 3, 5, 4
Q	14, 6, 5, 4, 12, 9, 11, 10, 7, 8, 2, 3, 13
D	7, 11, 10, 16, 13, 12, 9, 8, 20, 22, 26, 17, 14, 24, 23, 30, 25, 3, 18, 15, 4, 29, 2, 31, 32, 28, 1
TP	1, 2, 3, 5, 4, 6


PA
SONY
1-621-049-11

– PA board (Serial No. 5,000,301 ~ 5,000,500) –

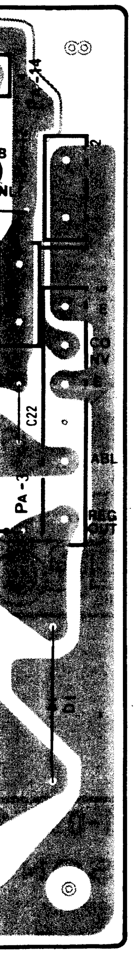
IC	2, 1
Q	14
D	7, 11, 10, 16, 13, 12, 9, 8, 20, 22, 26, 17, 14, 24, 2
TP	1, 2, 3, 5, 4, 6

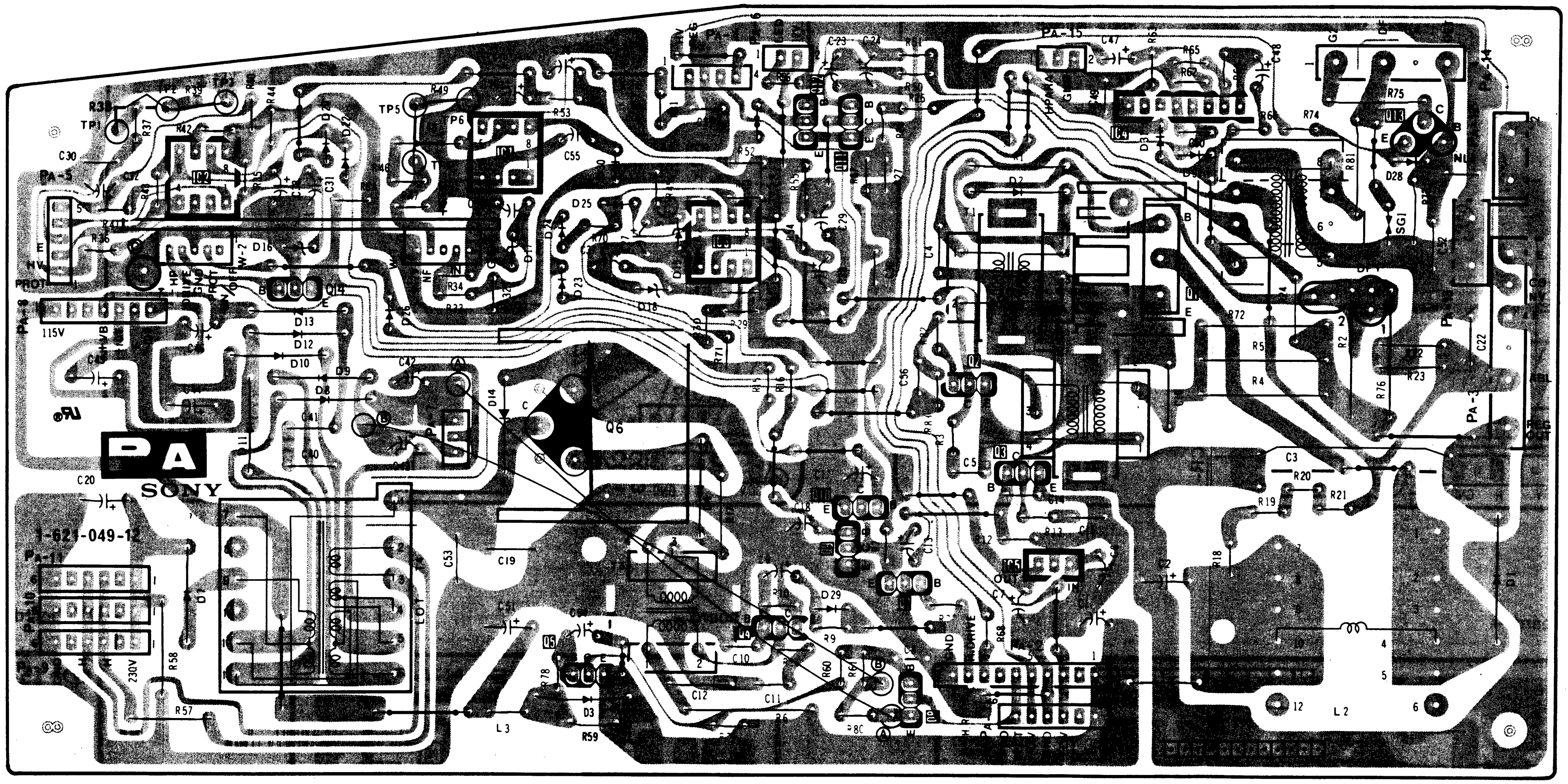

PA
SONY
1-621-049-12

12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

– PA board (Serial No. 5,000,301 ~ 5,000,500) –

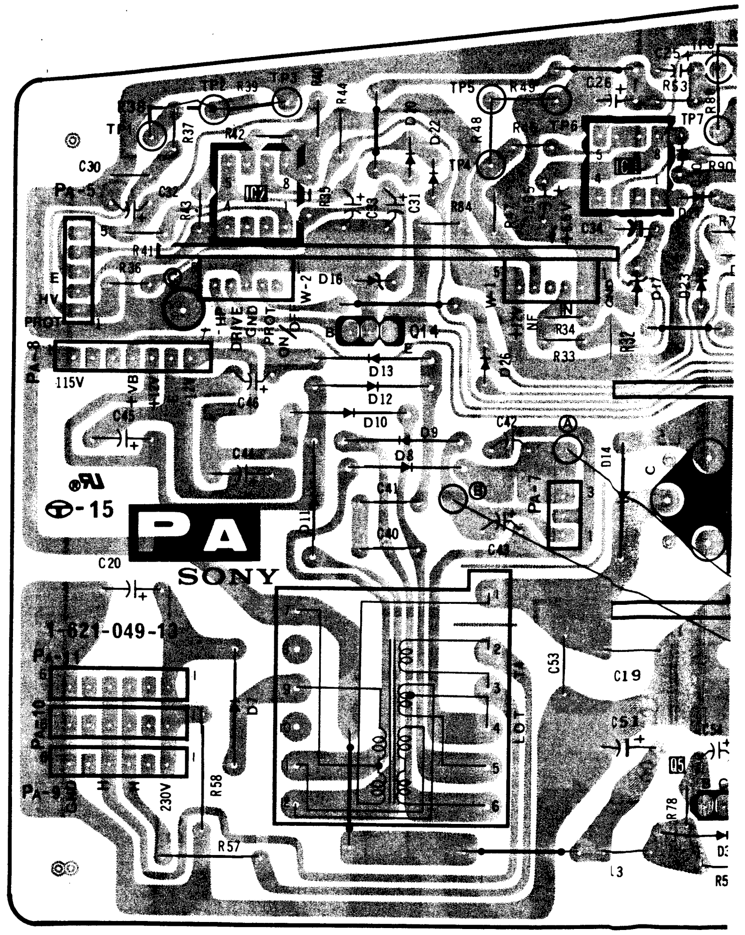
	13	14	15	16	17	18	19	20	21	22	23
IC		2		1		3		5	4		
Q			14		6 5	12 4 11 9 10	7 8 2	3		13	
D		7 11	16 20 22 13 10 12 9 8 26	17 24 23 14	30 25 3 18 15 4	29	2	31	32	28	1
TP	1	2 3	5 4	6							




PA
SONY
1-621-049-12
TP1
TP5
TP6
115V
230V
PROT
L2
L3
Q6

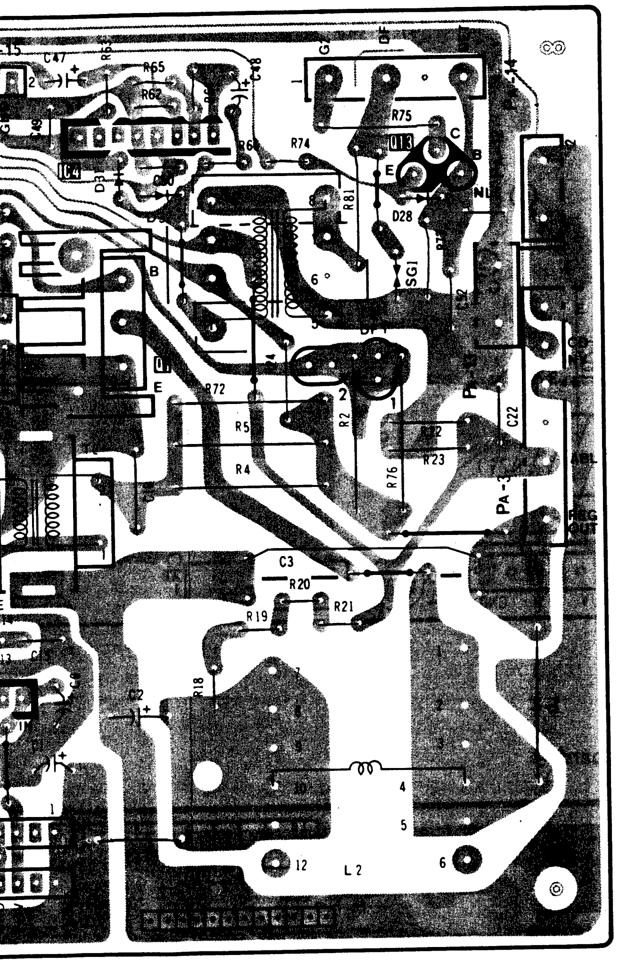
– PA board (Serial No. 5,000,501 and Later) –

	25	26	27
IC	2		1
Q		14	6 5
D	7	16 20 22 13 11 10 12 9 8	26 17 14 30 21 23,2 3
TP	1 2 3		5 4 6 8 7


PA
SONY
1-621-049-12
-15
TP1
TP5
115V
230V
PROT

20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35

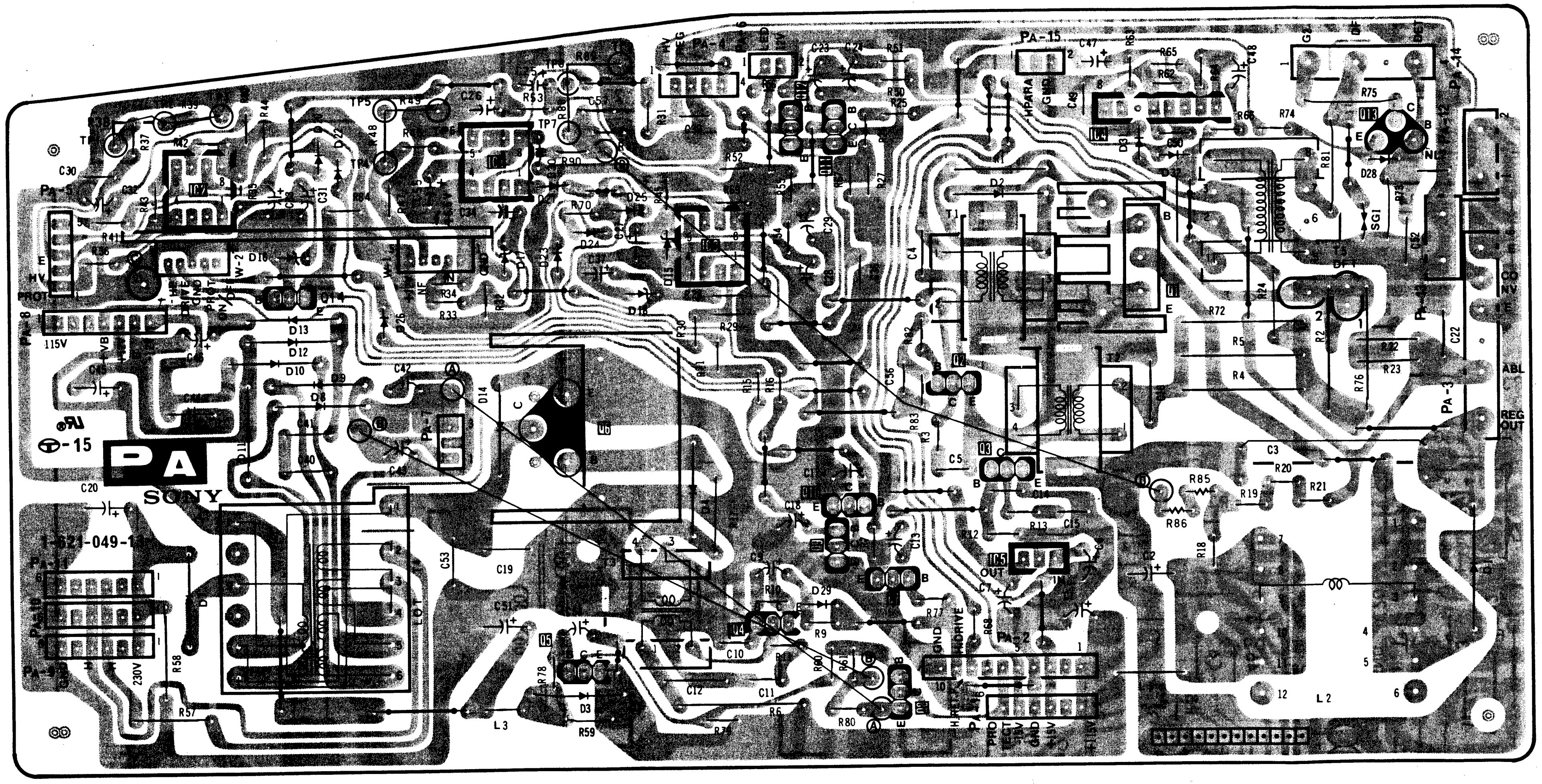
	20	21	22	23
	4			
			13	
	31 32		28	1



PA-15
C47
R65
R62
C48
R75
R74
D28
SG1
R81
DFY
R72
R5
R4
R2
R76
R22
R23
C22
PA-3
REG OUT
ABL
C3
R20
R21
R19
R18
L2
12
4
5
6

- PA board (Serial No. 5,000,501 and Later) -

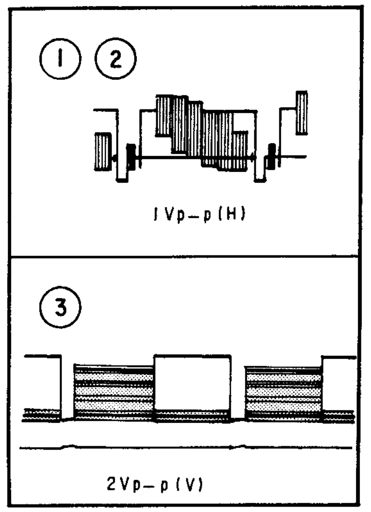
	25	26	27	28	29	30	31	32	33	34
IC	2		1		3		5	4		
Q		14		6 5	4 12	11 10 7 9 8 2	3	1	13	
D	7	16 20 22 13 11 10 12 9 8	26 17 14	30 21 23,24 25 18 15 3	4 29		2	31 32		1
TP	1 2 3		5 4 6	8 7 9						



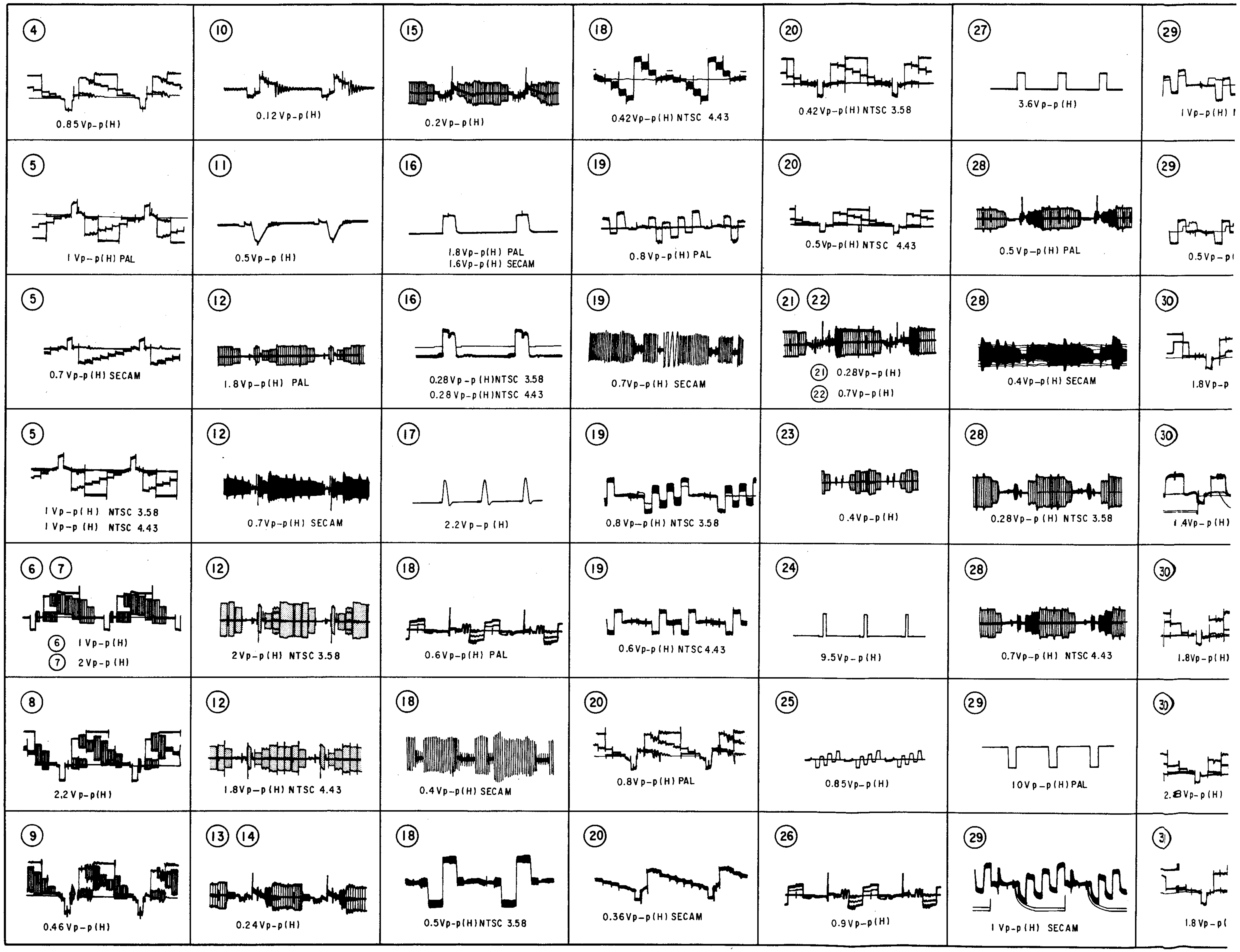
PA
SONY
1-621-049-1
⊖-15
115V
230V
HV
PROT
PA-4
PA-15
PA-6
PA-1
PA-2
PA-3
PA-14
PA-5
C30
C20
C19
C53
C47
C48
C3
C5
C10
C11
C12
C14
C15
C22
C23
C24
C42
R85
R86
R19
R20
R21
R18
R75
R74
R72
R5
R4
R76
R22
R23
R80
R57
R58
R59
R9
R6
L2
L3
T1
D2
D3
D10
D12
D13
D14
D28
D29
TP5
TP7
SG1
DFY
ABL
REG OUT
CONV
DRIVE
GND
OUT
12
4
5
6

7-7. WAVEFORMS

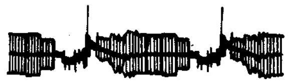
QA board



BA board

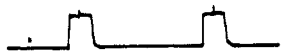


⑮



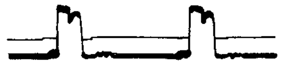
0.2Vp-p(H)

⑯



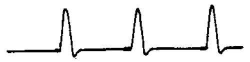
1.8Vp-p(H) PAL
1.6Vp-p(H) SECAM

⑯



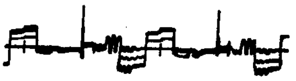
0.28Vp-p(H)NTSC 3.58
0.28Vp-p(H)NTSC 4.43

⑰



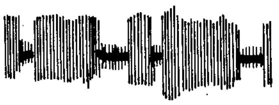
2.2Vp-p(H)

⑱



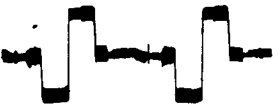
0.6Vp-p(H) PAL

⑱



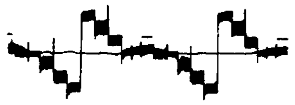
0.4Vp-p(H) SECAM

⑱



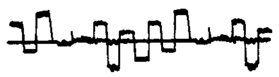
0.5Vp-p(H)NTSC 3.58

⑱



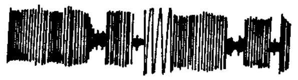
0.42Vp-p(H) NTSC 4.43

⑲



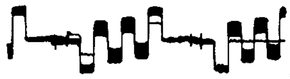
0.8Vp-p(H) PAL

⑲



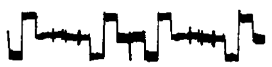
0.7Vp-p(H) SECAM

⑲



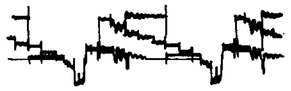
0.8Vp-p(H) NTSC 3.58

⑲



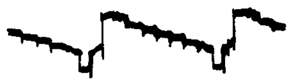
0.6Vp-p(H) NTSC4.43

⑳



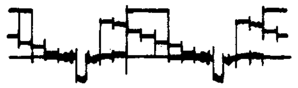
0.8Vp-p(H) PAL

⑳



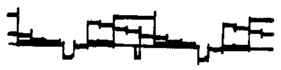
0.36Vp-p(H) SECAM

⑳



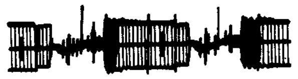
0.42Vp-p(H) NTSC 3.58

⑳



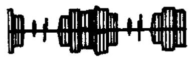
0.5Vp-p(H) NTSC 4.43

㉑ ㉒



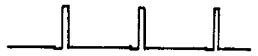
㉑ 0.28Vp-p(H)
㉒ 0.7Vp-p(H)

㉓



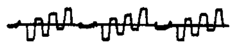
0.4Vp-p(H)

㉔



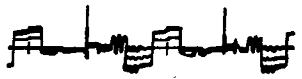
9.5Vp-p(H)

㉕



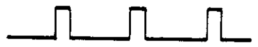
0.85Vp-p(H)

㉖



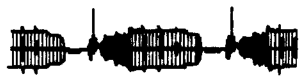
0.9Vp-p(H)

㉗



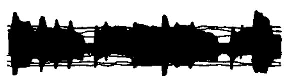
3.6Vp-p(H)

㉘



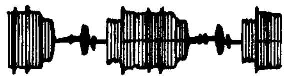
0.5Vp-p(H) PAL

㉘



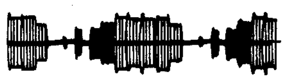
0.4Vp-p(H) SECAM

㉘



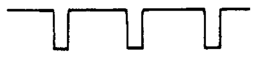
0.28Vp-p(H) NTSC 3.58

㉘



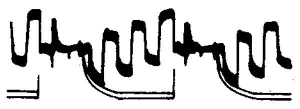
0.7Vp-p(H) NTSC 4.43

㉙



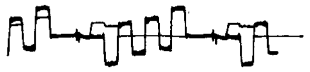
10Vp-p(H) PAL

㉙



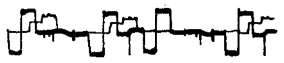
1Vp-p(H) SECAM

㉙



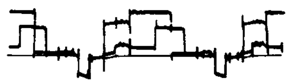
1Vp-p(H) NTSC 3.58

㉙



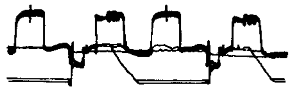
0.5Vp-p(H) NTSC 4.43

㉚



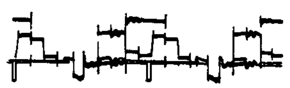
1.8Vp-p(H) PAL

㉚



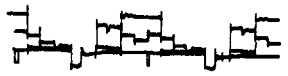
1.4Vp-p(H) SECAM

㉚



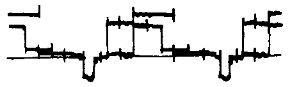
1.8Vp-p(H) NTSC 3.58

㉚



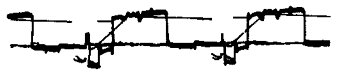
2.8Vp-p(H) NTSC 4.43

㉛



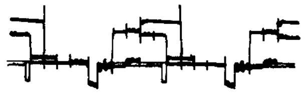
1.8Vp-p(H) PAL

㉛



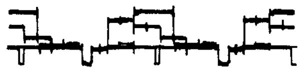
1.3Vp-p(H) SECAM

㉛



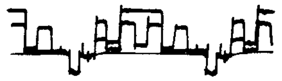
1.8Vp-p(H) NTSC 3.58

㉛



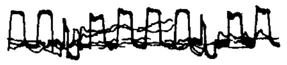
2.8Vp-p(H) NTSC 4.43

㉜



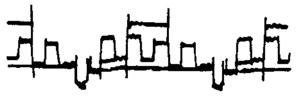
1.7Vp-p(H) PAL

㉜



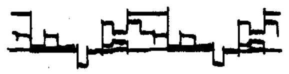
1.3Vp-p(H) SECAM

㉜



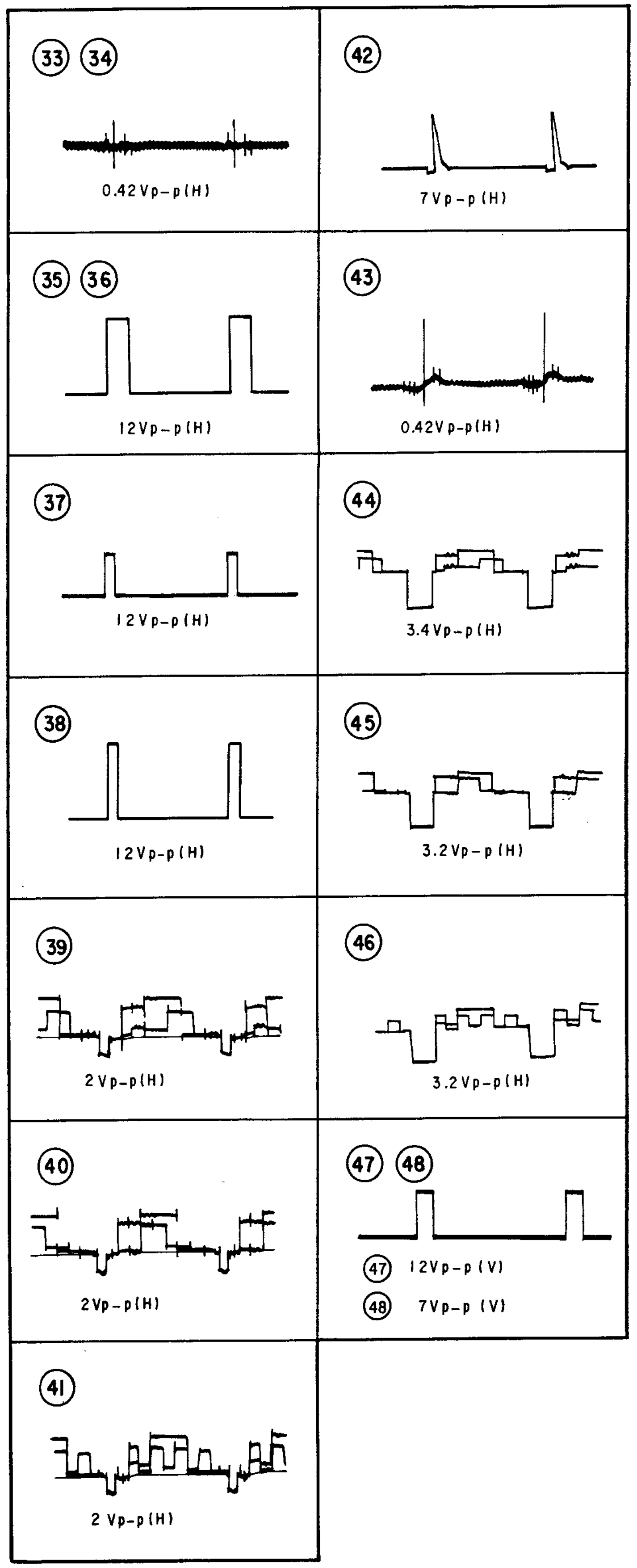
1.8Vp-p(H) NTSC 3.58

㉜

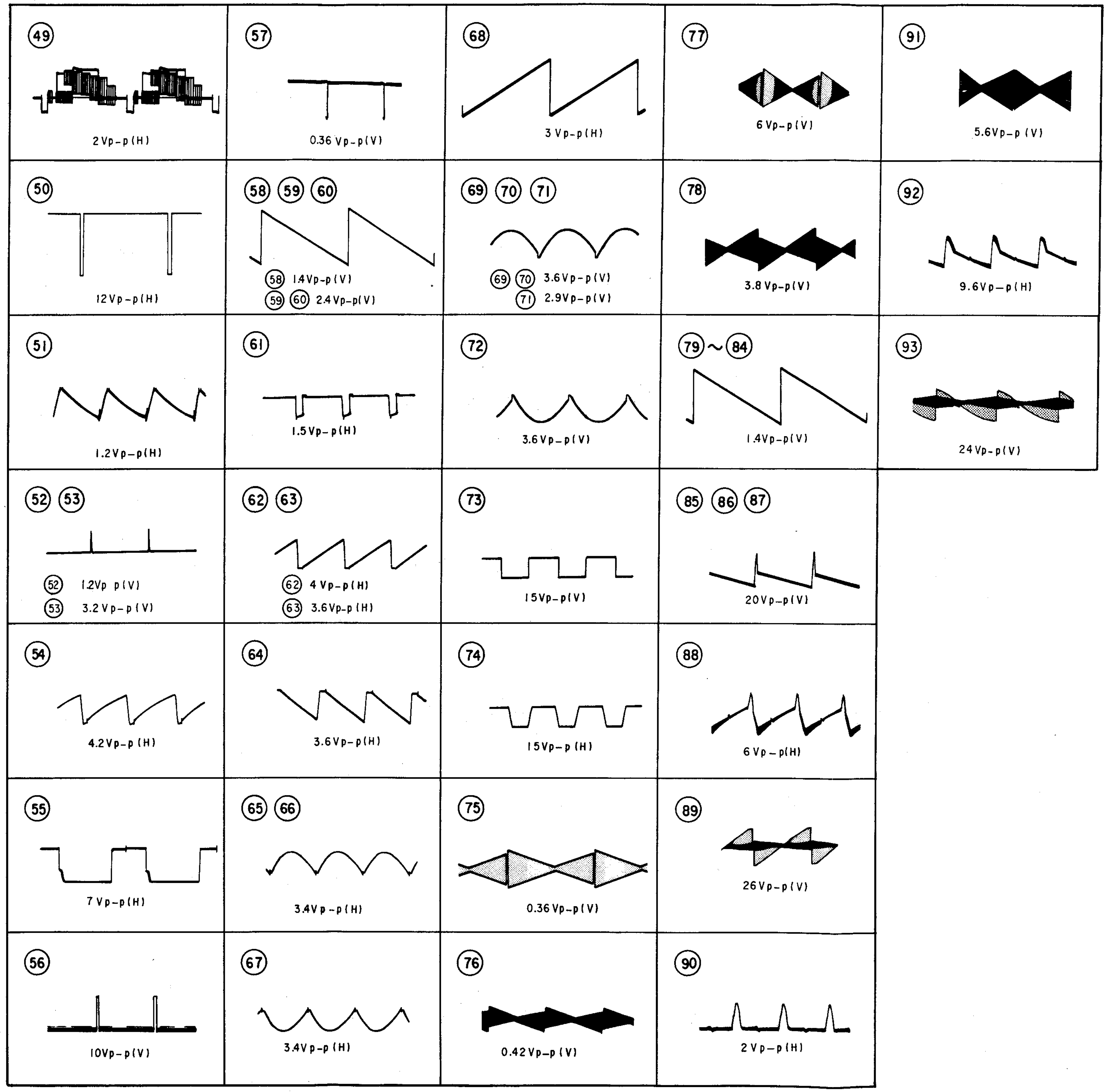


2.8Vp-p(H) NTSC 4.43

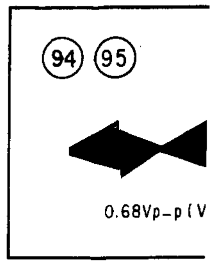
BB board

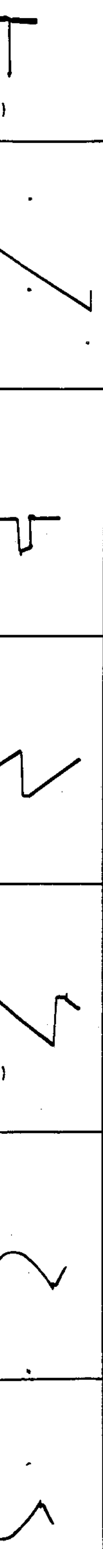


D board

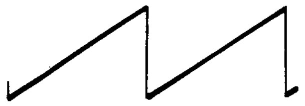


DB board



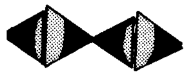


(68)



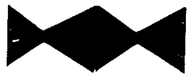
3 Vp-p(H)

(77)



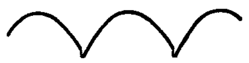
6 Vp-p(V)

(91)



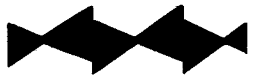
5.6Vp-p (V)

(69) (70) (71)



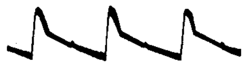
(69) (70) 3.6Vp-p(V)
(71) 2.9Vp-p(V)

(78)



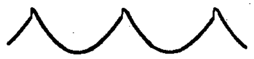
3.8 Vp-p(V)

(92)



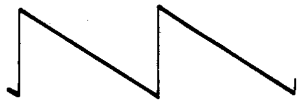
9.6Vp-p(H)

(72)



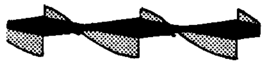
3.6Vp-p(V)

(79)～(84)



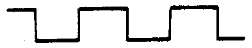
1.4Vp-p(V)

(93)



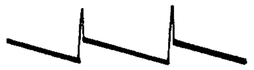
24Vp-p(V)

(73)



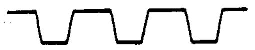
15Vp-p(V)

(85) (86) (87)



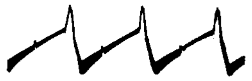
20Vp-p(V)

(74)



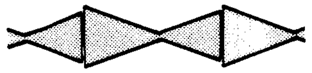
15Vp-p (H)

(88)



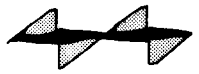
6 Vp-p(H)

(75)



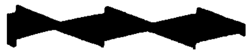
0.36Vp-p(V)

(89)



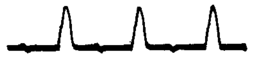
26Vp-p(V)

(76)



0.42Vp-p(V)

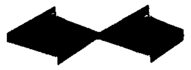
(90)



2 Vp-p(H)

DB board

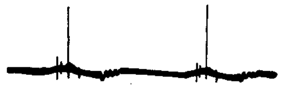
(94) (95)



0.68Vp-p(V)

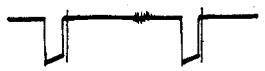
E board

(96) (97) (98)



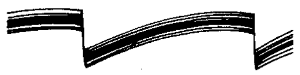
1.2Vp-p (H)

(105)



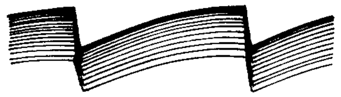
6Vp-p(H)

(99)



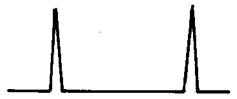
1.2Vp-p(V)

(100)



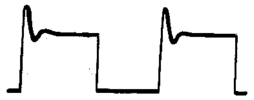
1.2Vp-p(V)

(101)



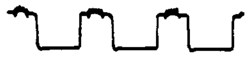
800Vp-p(H)

(102)



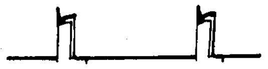
125Vp-p(H)

(103)



4Vp-p(H)

(104)



68Vp-p(H)

SECTION 8
EXPLODED VIEWS

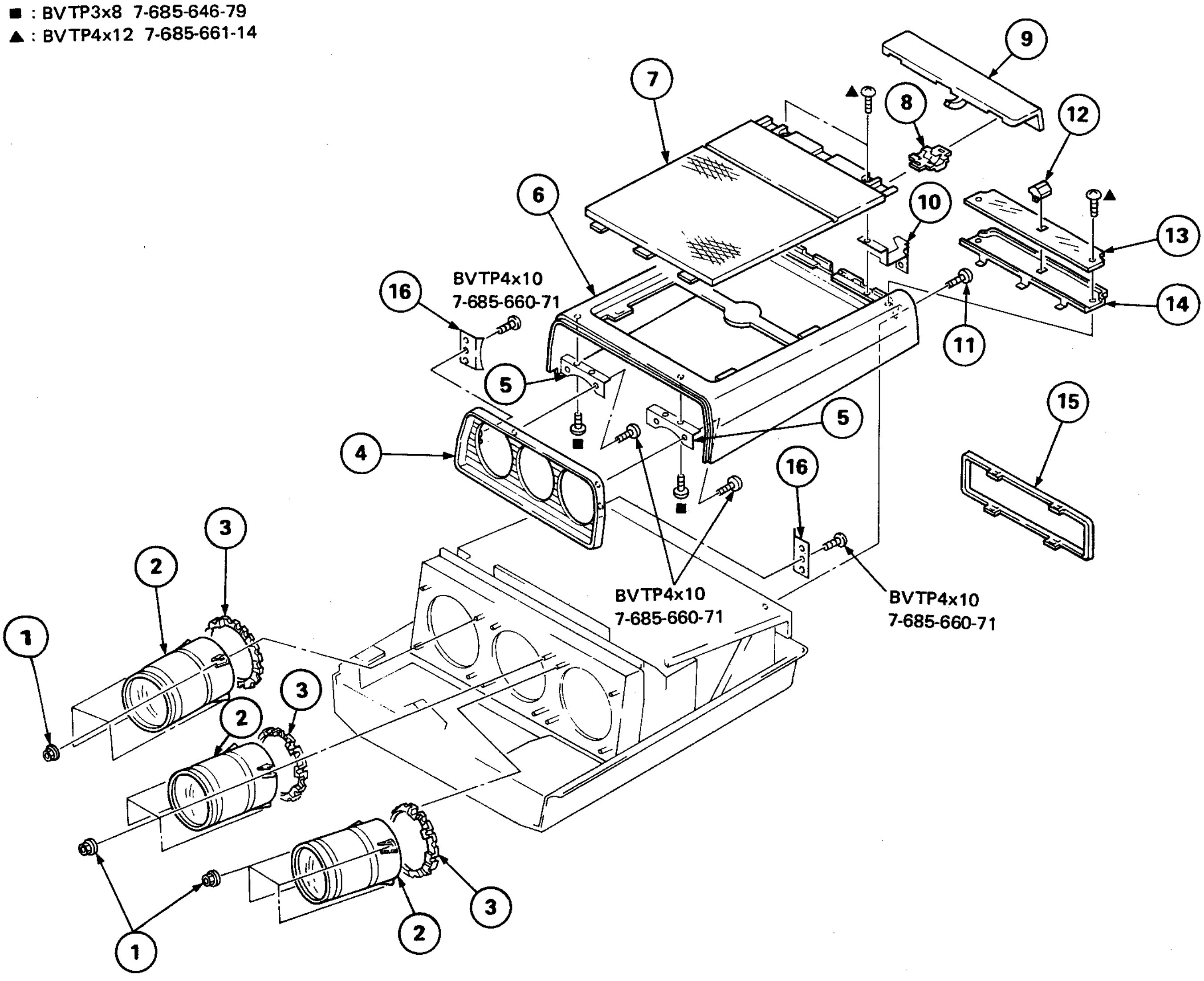
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

8-1. LENS

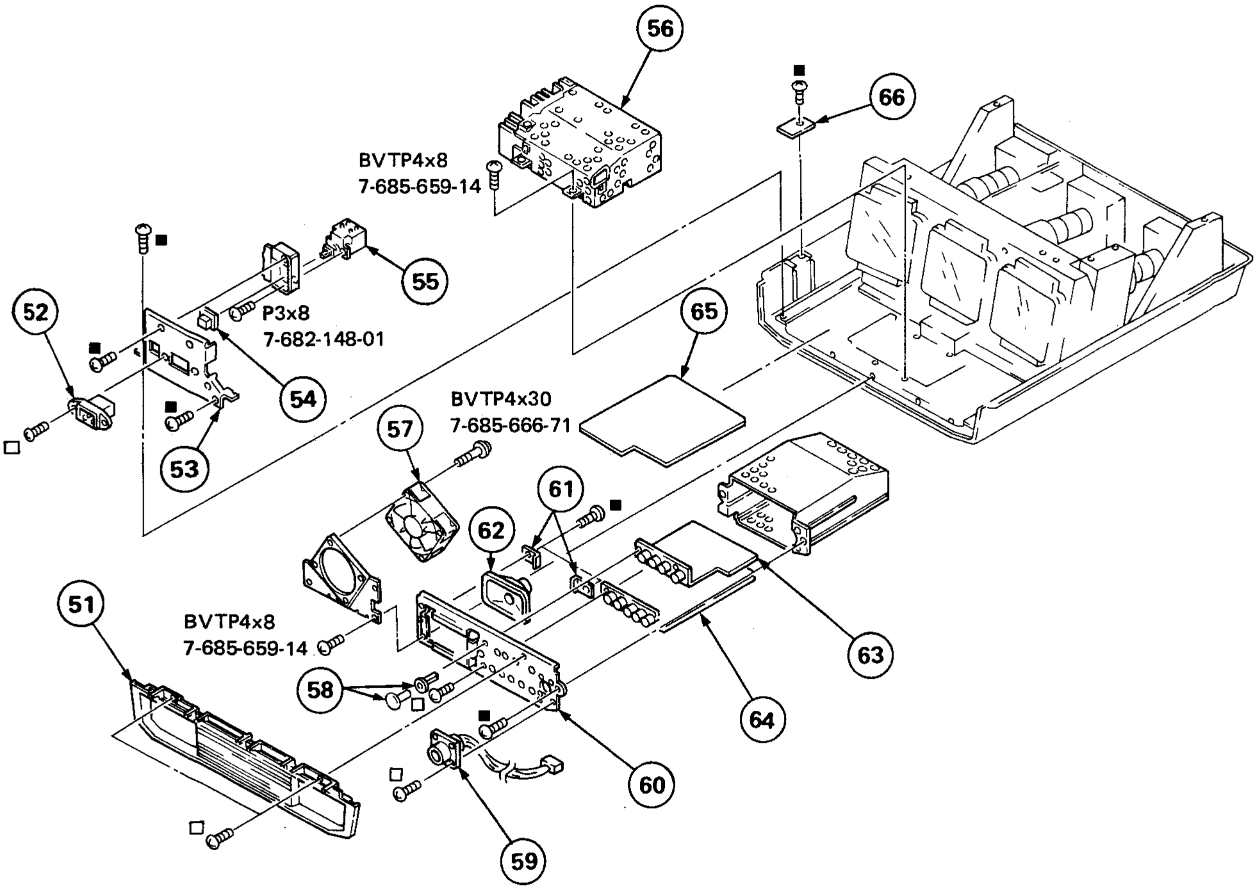
■ : BVTP3x8 7-685-646-79
▲ : BVTP4x12 7-685-661-14



No.	Part No.	Description	Remark
1	4-304-749-00	NUT, FLANGE	
2	4-383-018-01	LENS (DELTA) (TAC-3)	
3	*4-378-642-01	WASHER, LENS	
4	4-383-064-01	PANEL, LENS	
5	*4-383-021-01	BRACKET, LENS PANEL	
6	4-378-655-01	CABINET	
7	X-4378-625-1	BOARD ASSY, TOP	8,9
8	3-659-618-00	HINGE, SPRING	
9	X-4378-603-1	DOOR ASSY	
10	*4-378-670-01	BRACKET, MESH EARTH	
11	3-703-251-00	SCREW (+M4), IT TAPPING	
12	4-378-613-01	CAP, LAMP	
13	4-383-050-01	PLATE, ORNAMENTAL, CONTROL	
14	4-383-056-01	PANEL, CONTROL	
15	4-383-053-01	PANEL, REAR	
16	*4-383-038-01	BRACKET (B), LENS PANEL	

8-2. PANEL

■ : BVTP3x8 7-685-646-79
□ : BVTP3x8 7-685-646-79

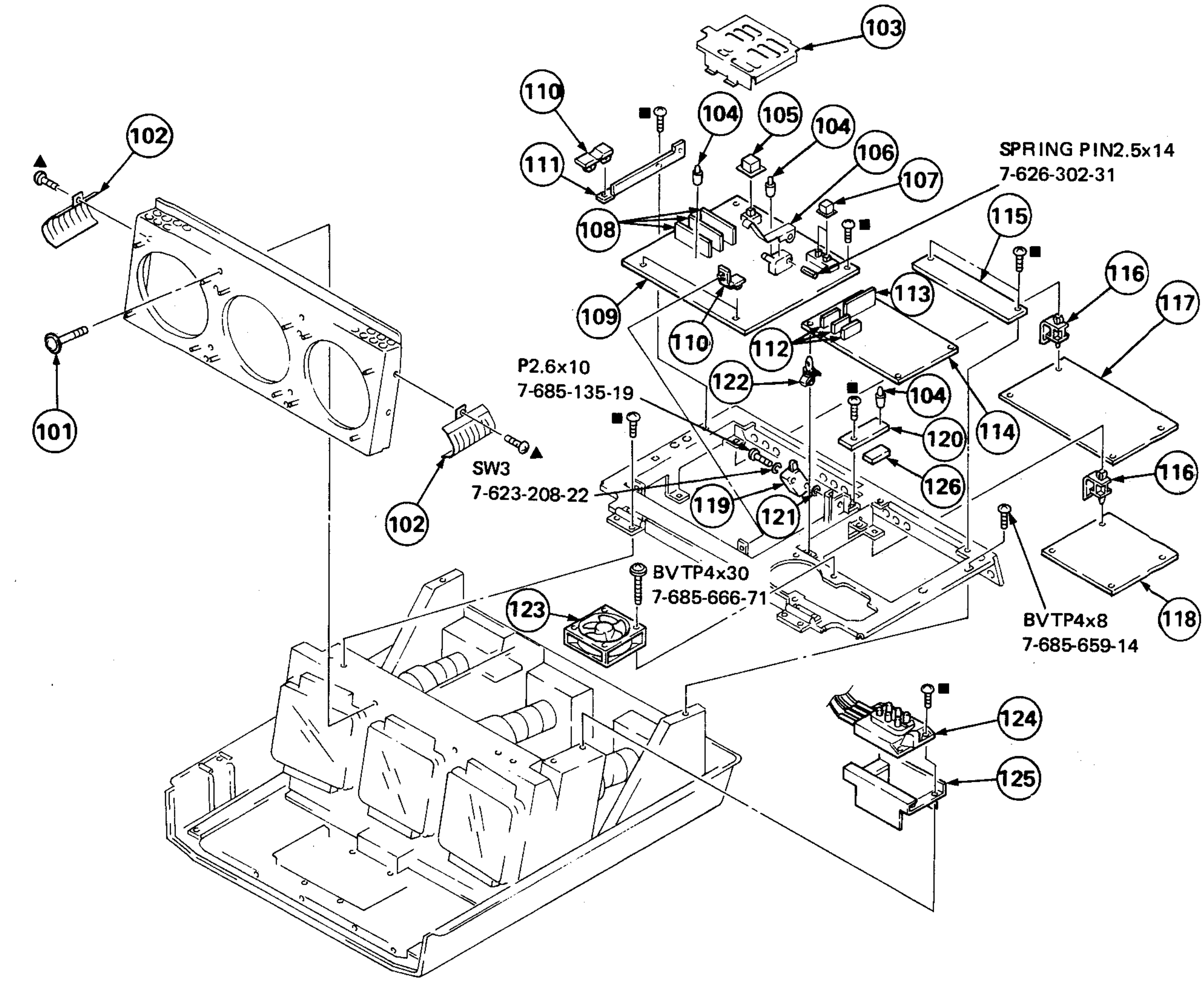

56
■
66
BVTP4x8
7-685-659-14
■
55
52
P3x8
7-682-148-01
65
■
54
■
□
53
BVTP4x30
7-685-666-71
57
61
■
62
51
BVTP4x8
7-685-659-14
63
58
□
■
64
□
60
□
59

No.	Part No.	Description	Remark
51	4-383-063-01	PANEL, CONNECTOR	
52	⚠1-509-547-11	3P INLET	
53	4-383-049-01	PANEL (F), CONNECTOR	
54	4-362-811-00	BUTTON, MAIN POWER	
55	⚠1-570-052-12	SWITCH, PUSH (AC POWER)(1 KEY)	
56	⚠1-413-289-11	REGULATOR, SWITCHING (TK-15)	
57	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
58	4-374-303-01	RIVET, NYLON	
59	1-559-088-11	CONNECTOR ASSY, ROUND TYPE 14P	
60	*4-383-051-01	CHASSIS (R), FRONT	
61	4-383-026-01	SPRING	
62	1-503-255-00	SPEAKER	
63	*A-1270-202-A	QB BOARD, COMPLETE	
64	*A-1270-201-A	QA BOARD, COMPLETE	
65	*1-621-056-11	FA BOARD	
66	*1-621-058-11	FC BOARD	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

8-3. D BOARD

▲ : BVTP4x12 7-685-661-14
■ : BVTP3x8 7-685-646-79

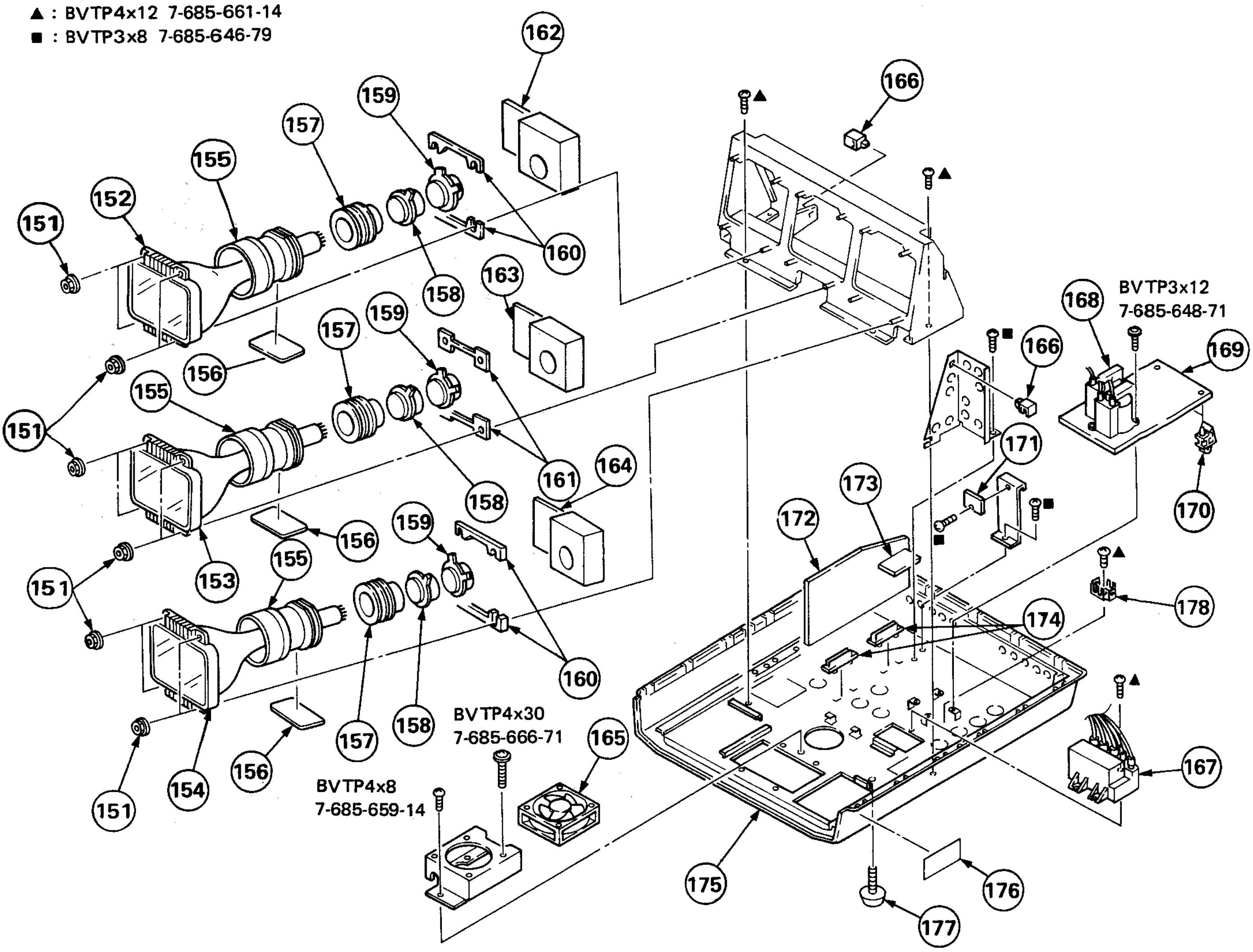

103
110
104
105
104
106
107
SPRING PIN2.5x14
7-626-302-31
102
111
108
115
116
117
109
110
113
112
P2.6x10
7-685-135-19
122
104
101
120
114
SW3
7-623-208-22
126
116
119
121
102
BVTP4x30
7-685-666-71
123
BVTP4x8
7-685-659-14
118
124
125

No.	Part No.	Description	Remark
101	4-361-723-01	SCREW, TAPPING, SPECIAL	
102	*4-378-671-01	SPRING	
103	*4-383-047-01	COVER, REGISTRATION ADJUSTMENT	
104	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
105	4-362-808-00	BUTTON, POWER	
106	*4-378-608-01	ACTUATOR	
107	4-362-809-00	BUTTON, SELECT	
108	*1-621-059-11	DB BOARD	
109	*A-1340-919-A	D BOARD, COMPLETE	108
110	*4-313-732-00	CLIP, HINGE, CIRCUIT BOARD	
111	*4-378-624-01	STOPPER, DB PC BOARD	
112	*1-621-060-11	EC BOARD	
113	*1-621-055-11	EB BOARD	
114	*A-1340-922-A	E BOARD, COMPLETE	112,113
115	*1-621-062-11	HA BOARD	
116	*3-680-721-00	HOLDER, CHASSIS	
117	*A-1130-546-A	BB BOARD, COMPLETE	
118	*A-1135-432-A	BA BOARD, COMPLETE	
119	⚠1-552-437-11	SWITCH, LEVER	
120	*1-621-051-11	X BOARD	
121	*4-309-378-00	SPACER	
122	*3-703-353-02	SUPPORT, PC BOARD	
123	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
124	⚠1-237-582-11	RESISTOR ASSY, HIGH-VOLTAGE	
125	*4-383-037-01	COVER, FOCUS PACK	
126	9-911-840-XX	CUSHION	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

8-4. BASE ASSY

▲ : BVTP4x12 7-685-661-14
■ : BVTP3x8 7-685-646-79


162
166
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BVTP3x12
7-685-648-71
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BVTP4x30
7-685-666-71
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158
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167
156
154
BVTP4x8
7-685-659-14
151
175
176
177

No.	Part No.	Description	Remark
151	4-304-749-00	NUT, FLANGE	
152	⚠8-733-023-05	CRT (SD-187 (R))	
153	⚠8-733-021-05	CRT (SD-187 (G))	
154	⚠8-733-022-05	CRT (SD-187 (B))	
155	⚠1-451-243-12	DEFLECTION YOKE (SY-130A)	
156	*1-621-053-11	DY BOARD	
157	⚠1-452-302-11	CRT NECK ASSEMBLY	
158	⚠1-452-261-41	CRT NECK ASSY (362)	
159	⚠1-452-261-32	CRT NECK ASSY (362)	
160	*4-378-603-01	SPACER (100), CRT	
161	*4-383-025-01	SPACER (G), CRT	
162	*1-621-068-11	CR BOARD	
163	*1-621-069-11	CG BOARD	
164	*1-621-070-11	CB BOARD	
165	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
166	*3-701-903-00	HOLDER, PC BOARD	
167	⚠1-453-108-11	DC BLOCK, HIGH-VOLTAGE	
168	⚠1-439-408-11	TRANSFORMER ASSY, FLYBACK	
169	*1-621-050-11	PC BOARD	
170	*3-680-721-00	HOLDER, CHASSIS	
171	*1-621-052-11	Y BOARD	
172	*A-1190-110-A	PA BOARD, COMPLETE	173
	*A-1190-113-A	PA BOARD, COMPLETE (Serial No. 5000501 and Later)	
173	*1-621-054-11	PB BOARD	
174	*3-680-613-01	SUPPORT, PC BOARD	
175	X-4378-628-1	BASE ASSY	177
176	*4-383-042-01	LABEL, MODEL NUMBER	
177	4-378-622-01	ADJUSTOR	
178	*4-309-624-00	TERMINAL, EARTH	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 9
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

When indicating parts by reference number, please include the board name.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

CAPACITORS
- MF : μF, PF : μμF

RESISTORS
- All resistors are in ohms
- F : nonflammable

COILS
- MMH : mH, UH : μH

- **The components identified by ☒ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.**

Ref.No.	Part No.	Description			Remark
	*A-1130-546-A	BB BOARD, COMPLETE ******************			

CONNECTOR

Ref.No.	Part No.	Description			Remark
BB1	*1-566-058-11	PIN, CONNECTOR 6P			
BB2	*1-566-060-11	PIN, CONNECTOR 8P			
BB3	*1-566-056-11	PIN, CONNECTOR 4P			
BB4	*1-566-058-11	PIN, CONNECTOR 6P			
BB5	*1-566-059-11	PIN, CONNECTOR 7P			
BB6	*1-566-060-11	PIN, CONNECTOR 8P			
BB7	*1-566-057-11	PIN, CONNECTOR 5P			
BB8	*1-566-057-11	PIN, CONNECTOR 5P			
BB9	*1-566-057-11	PIN, CONNECTOR 5P			

CAPACITOR

Ref.No.	Part No.	Description			Remark
C1	1-123-380-00	ELECT	1MF	20%	50V
C2	1-123-356-00	ELECT	10MF	20%	16V
C3	1-123-380-00	ELECT	1MF	20%	50V
C5	1-123-333-00	ELECT	100MF	20%	16V
C6	1-101-004-00	CERAMIC	0.01MF		50V
C7	1-136-153-00	FILM	0.01MF	5%	50V
C8	1-136-153-00	FILM	0.01MF	5%	50V
C9	1-136-153-00	FILM	0.01MF	5%	50V
C10	1-102-822-00	CERAMIC	390PF	5%	50V
C11	1-102-822-00	CERAMIC	390PF	5%	50V
C12	1-102-822-00	CERAMIC	390PF	5%	50V
C13	1-123-356-00	ELECT	10MF	20%	16V
C14	1-123-321-00	ELECT	220MF	20%	16V
C15	1-101-006-00	CERAMIC	0.047MF		50V
C16	1-123-379-00	ELECT	0.47MF	20%	50V
C17	1-123-379-00	ELECT	0.47MF	20%	50V
C18	1-102-824-00	CERAMIC	470PF	5%	50V
C19	1-101-361-00	CERAMIC	150PF	5%	50V
C20	1-101-361-00	CERAMIC	150PF	5%	50V
C21	1-123-356-00	ELECT	10MF	20%	16V
C22	1-101-361-00	CERAMIC	150PF	5%	50V
C23	1-123-380-00	ELECT	1MF	20%	50V
C24	1-123-380-00	ELECT	1MF	20%	50V
C25	1-123-330-00	ELECT	22MF	20%	16V
C26	1-123-380-00	ELECT	1MF	20%	50V
C27	1-136-165-00	FILM	0.1MF	5%	50V
C28	1-136-165-00	FILM	0.1MF	5%	50V
C29	1-136-165-00	FILM	0.1MF	5%	50V
C30	1-123-379-00	ELECT	0.47MF	20%	50V
C31	1-136-153-00	FILM	0.01MF	5%	50V
C32	1-124-464-11	ELECT	0.22MF	20%	50V
C33	1-102-973-00	CERAMIC	100PF	5%	50V
C34	1-123-379-00	ELECT	0.47MF	20%	50V
C35	1-123-356-00	ELECT	10MF	20%	16V
C36	1-101-810-00	CERAMIC	100PF	5%	500V
C37	1-102-973-00	CERAMIC	100PF	5%	50V
C38	1-101-888-00	CERAMIC	68PF	5%	50V
C39	1-102-973-00	CERAMIC	100PF	5%	50V
C40	1-123-333-00	ELECT	100MF	20%	16V
C41	1-136-153-00	FILM	0.01MF	5%	50V
C42	1-123-356-00	ELECT	10MF	20%	16V
C43	1-101-880-00	CERAMIC	47PF	5%	50V
C44	1-123-380-00	ELECT	1MF	20%	50V
C45	1-123-356-00	ELECT	10MF	20%	16V
C46	1-123-356-00	ELECT	10MF	20%	16V
C47	1-123-380-00	ELECT	1MF	20%	50V
C48	1-123-380-00	ELECT	1MF	20%	50V
C49	1-123-332-00	ELECT	47MF	20%	16V
C50	1-101-006-00	CERAMIC	0.047MF		50V
C51	1-101-006-00	CERAMIC	0.047MF		50V
C52	1-101-006-00	CERAMIC	0.047MF		50V
C53	1-101-006-00	CERAMIC	0.047MF		50V
C54	1-101-006-00	CERAMIC	0.047MF		50V
C55	1-101-006-00	CERAMIC	0.047MF		50V
C56	1-101-006-00	CERAMIC	0.047MF		50V
C57	1-101-006-00	CERAMIC	0.047MF		50V

DIODE

Ref.No.	Part No.	Description	Remark
D1	8-719-911-19	DIODE 1SS119	
D2	8-719-911-19	DIODE 1SS119	
D3	8-719-911-19	DIODE 1SS119	
D4	8-719-911-19	DIODE 1SS119	
D5	8-719-911-19	DIODE 1SS119	
D6	8-719-911-19	DIODE 1SS119	
D7	8-719-911-19	DIODE 1SS119	
D8	8-719-911-19	DIODE 1SS119	
D9	8-719-911-19	DIODE 1SS119	
D10	8-719-110-36	DIODE RD13ES-B2	
D11	8-719-911-19	DIODE 1SS119	
D12	8-719-911-19	DIODE 1SS119	
D13	8-719-911-19	DIODE 1SS119	
D14	8-719-911-19	DIODE 1SS119	
D15	8-719-911-19	DIODE 1SS119	
D16	8-719-911-19	DIODE 1SS119	
D17	8-719-911-19	DIODE 1SS119	
D18	8-719-911-19	DIODE 1SS119	
D19	8-719-911-19	DIODE 1SS119	
D20	8-719-911-19	DIODE 1SS119	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-170-12	IC UPC78M12H	
IC2	8-759-700-69	IC NJM79L12A	
IC3	8-759-340-52	IC HD14052BP	
IC4	8-759-340-52	IC HD14052BP	
IC5	8-752-030-45	IC CXA1044P	
IC6	8-759-240-69	IC TC4069UBP	
IC7	8-759-240-71	IC TC4071BP	
IC8	8-759-145-58	IC UPC4558C	
IC9	8-759-145-58	IC UPC4558C	
IC10	8-759-145-58	IC UPC4558C	
IC11	8-759-340-46	IC HD14046BP	

BB

Ref.No.	Part No.	Description	Remark
IC12	8-759-240-24	IC TC4024BP	
IC13	8-759-340-46	IC HD14046BP	
IC14	8-759-240-40	IC TC4040BP	
IC15	8-759-240-81	IC TC4081BP	
IC16	8-759-240-82	IC TC4082BP	
IC17	8-759-340-13	IC HD14013BP	
IC18	8-759-340-13	IC HD14013BP	
		COIL	
L1	1-410-494-11	MICRO INDUCTOR 1MMH	
L2	1-410-482-41	MICRO INDUCTOR 100UH	
		TRANSISTOR	
Q1	8-729-178-54	TRANSISTOR 2SC2785	
Q2	8-729-117-54	TRANSISTOR 2SA1175	
Q3	8-729-178-54	TRANSISTOR 2SC2785	
Q4	8-729-900-89	TRANSISTOR DTC144ES	
Q5	8-729-117-54	TRANSISTOR 2SA1175	
Q6	8-729-178-54	TRANSISTOR 2SC2785	
Q7	8-729-900-89	TRANSISTOR DTC144ES	
Q8	8-729-117-54	TRANSISTOR 2SA1175	
Q9	8-729-178-54	TRANSISTOR 2SC2785	
Q10	8-729-900-89	TRANSISTOR DTC144ES	
Q11	8-729-213-12	TRANSISTOR 2SC2230A	
Q12	8-729-117-54	TRANSISTOR 2SA1175	
Q13	8-729-117-54	TRANSISTOR 2SA1175	
Q14	8-729-117-54	TRANSISTOR 2SA1175	
Q15	8-729-117-54	TRANSISTOR 2SA1175	
Q16	8-729-178-54	TRANSISTOR 2SC2785	
Q17	8-729-178-54	TRANSISTOR 2SC2785	
Q18	8-729-178-54	TRANSISTOR 2SC2785	
Q19	8-729-178-54	TRANSISTOR 2SC2785	
Q20	8-729-178-54	TRANSISTOR 2SC2785	
Q21	8-729-178-54	TRANSISTOR 2SC2785	
Q22	8-729-178-54	TRANSISTOR 2SC2785	
Q23	8-729-178-54	TRANSISTOR 2SC2785	
Q24	8-729-178-54	TRANSISTOR 2SC2785	
Q25	8-729-178-54	TRANSISTOR 2SC2785	
Q26	8-729-178-54	TRANSISTOR 2SC2785	
Q27	8-729-178-54	TRANSISTOR 2SC2785	
Q28	8-729-178-54	TRANSISTOR 2SC2785	
Q29	8-729-178-54	TRANSISTOR 2SC2785	
Q30	8-729-178-54	TRANSISTOR 2SC2785	
Q31	8-729-178-54	TRANSISTOR 2SC2785	
Q32	8-729-178-54	TRANSISTOR 2SC2785	
Q33	8-729-178-54	TRANSISTOR 2SC2785	
Q34	8-729-117-54	TRANSISTOR 2SA1175	
Q35	8-729-178-54	TRANSISTOR 2SC2785	
Q36	8-729-178-54	TRANSISTOR 2SC2785	
Q37	8-729-117-54	TRANSISTOR 2SA1175	
Q38	8-729-178-54	TRANSISTOR 2SC2785	
Q39	8-729-178-54	TRANSISTOR 2SC2785	
Q40	8-729-178-54	TRANSISTOR 2SC2785	

Ref.No.	Part No.	Description				Remark
Q41	8-729-900-89	TRANSISTOR DTC144ES				
		RESISTOR				
R1	1-247-700-11	CARBON	100	5%	1/4W	
R2	1-247-700-11	CARBON	100	5%	1/4W	
R3	1-247-700-11	CARBON	100	5%	1/4W	
R4	1-249-405-11	CARBON	100	5%	1/6W	
R5	1-249-405-11	CARBON	100	5%	1/6W	
R6	1-249-405-11	CARBON	100	5%	1/6W	
R7	1-249-420-11	CARBON	1.8K	5%	1/6W	
R8	1-249-417-11	CARBON	1K	5%	1/6W	
R9	1-249-420-11	CARBON	1.8K	5%	1/6W	
R10	1-249-417-11	CARBON	1K	5%	1/6W	
R11	1-249-425-11	CARBON	4.7K	5%	1/6W	
R12	1-249-421-11	CARBON	2.2K	5%	1/6W	
R13	1-247-724-11	CARBON	8.2K	5%	1/4W	
R14	1-249-405-11	CARBON	100	5%	1/6W	
R15	1-249-405-11	CARBON	100	5%	1/6W	
R16	1-249-421-11	CARBON	2.2K	5%	1/6W	
R17	1-249-417-11	CARBON	1K	5%	1/6W	
R18	1-249-414-11	CARBON	560	5%	1/6W	
R19	1-249-405-11	CARBON	100	5%	1/6W	
R20	1-249-405-11	CARBON	100	5%	1/6W	
R21	1-249-405-11	CARBON	100	5%	1/6W	
R22	1-247-813-00	CARBON	180	5%	1/6W	
R23	1-247-813-00	CARBON	180	5%	1/6W	
R24	1-247-813-00	CARBON	180	5%	1/6W	
R25	1-215-425-00	METAL	1.5K	1%	1/6W	
R26	1-215-413-00	METAL	470	1%	1/6W	
R27	1-249-405-11	CARBON	100	5%	1/6W	
R28	1-249-401-11	CARBON	47	5%	1/6W	
R29	1-249-415-11	CARBON	680	5%	1/6W	
R30	1-249-410-11	CARBON	270	5%	1/6W	
R32	1-215-425-00	METAL	1.5K	1%	1/6W	
R33	1-215-413-00	METAL	470	1%	1/6W	
R34	1-249-405-11	CARBON	100	5%	1/6W	
R35	1-247-696-11	CARBON	47	5%	1/4W	
R36	1-249-415-11	CARBON	680	5%	1/6W	
R37	1-249-410-11	CARBON	270	5%	1/6W	
R39	1-215-425-00	METAL	1.5K	1%	1/6W	
R40	1-215-413-00	METAL	470	1%	1/6W	
R41	1-249-405-11	CARBON	100	5%	1/6W	
R42	1-249-401-11	CARBON	47	5%	1/6W	
R43	1-249-410-11	CARBON	270	5%	1/6W	
R45	1-249-409-11	CARBON	220	5%	1/6W	
R46	1-249-393-11	CARBON	10	5%	1/6W	
R47	1-249-422-11	CARBON	2.7K	5%	1/6W	
R48	1-247-818-00	CARBON	300	5%	1/6W	
R49	1-249-405-11	CARBON	100	5%	1/6W	
R50	1-247-700-11	CARBON	100	5%	1/4W	
R51	1-249-405-11	CARBON	100	5%	1/6W	
R52	1-247-700-11	CARBON	100	5%	1/4W	
R53	1-249-422-11	CARBON	2.7K	5%	1/6W	

Ref.No.	Part No.	Description				Remark
R54	1-249-417-11	CARBON	1K	5%	1/6W	
R55	1-249-425-11	CARBON	4.7K	5%	1/6W	
R56	1-247-881-00	CARBON	120K	5%	1/6W	
R57	1-249-431-11	CARBON	15K	5%	1/6W	
R58	1-247-719-11	CARBON	3.3K	5%	1/4W	
R59	1-249-441-11	CARBON	100K	5%	1/6W	
R60	1-215-477-00	CARBON	220K	5%	1/6W	
R61	1-249-436-11	CARBON	39K	5%	1/6W	
R62	1-249-469-11	CARBON	100K	5%	1/4W	
R63	1-249-417-11	CARBON	1K	5%	1/6W	
R64	1-249-430-11	CARBON	12K	5%	1/6W	
R65	1-247-717-11	CARBON	2.2K	5%	1/4W	
R66	1-249-417-11	CARBON	1K	5%	1/6W	
R67	1-249-437-11	CARBON	47K	5%	1/6W	
R68	1-249-437-11	CARBON	47K	5%	1/6W	
R69	1-249-434-11	CARBON	27K	5%	1/6W	
R70	1-215-481-00	CARBON	330K	5%	1/6W	
R71	1-249-429-11	CARBON	10K	5%	1/6W	
R72	1-249-438-11	CARBON	56K	5%	1/6W	
R73	1-249-434-11	CARBON	27K	5%	1/6W	
R74	1-249-441-11	CARBON	100K	5%	1/6W	
R75	1-249-441-11	CARBON	100K	5%	1/6W	
R76	1-249-429-11	CARBON	10K	5%	1/6W	
R77	1-249-439-11	CARBON	68K	5%	1/6W	
R78	1-215-481-00	CARBON	330K	5%	1/6W	
R79	1-249-423-11	CARBON	3.3K	5%	1/6W	
R80	1-247-881-00	CARBON	120K	5%	1/6W	
R81	1-249-429-11	CARBON	10K	5%	1/6W	
R82	1-249-429-11	CARBON	10K	5%	1/6W	
R83	1-214-769-00	METAL	47K	1%	1/4W	
R84	1-215-469-00	METAL	100K	1%	1/6W	
R85	1-215-457-00	METAL	33K	1%	1/6W	
R86	1-215-469-00	METAL	100K	1%	1/6W	
R87	1-249-429-11	CARBON	10K	5%	1/6W	
R88	1-215-443-00	METAL	8.2K	1%	1/6W	
R89	1-215-443-00	METAL	8.2K	1%	1/6W	
R90	1-215-443-00	METAL	8.2K	1%	1/6W	
R91	1-215-477-00	CARBON	220K	5%	1/6W	
R92	1-215-477-00	CARBON	220K	5%	1/6W	
R93	1-215-477-00	CARBON	220K	5%	1/6W	
R94	1-249-441-11	CARBON	100K	5%	1/6W	
R95	1-249-469-11	CARBON	100K	5%	1/4W	
R96	1-249-429-11	CARBON	10K	5%	1/6W	
R97	1-215-479-00	CARBON	270K	5%	1/6W	
R98	1-249-429-11	CARBON	10K	5%	1/6W	
R99	1-215-431-00	METAL	2.7K	1%	1/6W	
R100	1-249-429-11	CARBON	10K	5%	1/6W	
R101	1-215-445-00	METAL	10K	1%	1/6W	
R102	1-215-429-00	METAL	2.2K	1%	1/6W	
R103	1-215-449-00	METAL	15K	1%	1/6W	
R104	1-249-405-11	CARBON	100	5%	1/6W	
R105	1-247-700-11	CARBON	100	5%	1/4W	
R106	1-249-405-11	CARBON	100	5%	1/6W	
R107	1-215-461-00	METAL	47K	1%	1/6W	
R108	1-214-777-00	METAL	100K	1%	1/4W	
R109	1-215-461-00	METAL	47K	1%	1/6W	
R110	1-215-469-00	METAL	100K	1%	1/6W	
R111	1-215-461-00	METAL	47K	1%	1/6W	
R112	1-215-469-00	METAL	100K	1%	1/6W	
R113	1-249-441-11	CARBON	100K	5%	1/6W	
R114	1-249-437-11	CARBON	47K	5%	1/6W	
R115	1-249-437-11	CARBON	47K	5%	1/6W	
R116	1-215-429-00	METAL	2.2K	1%	1/6W	
R117	1-249-423-11	CARBON	3.3K	5%	1/6W	
R118	1-249-417-11	CARBON	1K	5%	1/6W	
R119	1-249-417-11	CARBON	1K	5%	1/6W	
R120	1-247-726-11	CARBON	33K	5%	1/4W	
R121	1-249-441-11	CARBON	100K	5%	1/6W	
R122	1-249-427-11	CARBON	6.8K	5%	1/6W	
R123	1-249-431-11	CARBON	15K	5%	1/6W	
R124	1-249-415-11	CARBON	680	5%	1/6W	
R125	1-249-441-11	CARBON	100K	5%	1/6W	
R126	1-249-429-11	CARBON	10K	5%	1/6W	
R127	1-249-417-11	CARBON	1K	5%	1/6W	
R128	1-249-421-11	CARBON	2.2K	5%	1/6W	
R129	1-249-421-11	CARBON	2.2K	5%	1/6W	
R130	1-249-421-11	CARBON	2.2K	5%	1/6W	
R131	1-249-421-11	CARBON	2.2K	5%	1/6W	
R132	1-249-421-11	CARBON	2.2K	5%	1/6W	
R133	1-249-425-11	CARBON	4.7K	5%	1/6W	
R134	1-249-425-11	CARBON	4.7K	5%	1/6W	
R135	1-249-425-11	CARBON	4.7K	5%	1/6W	
R136	1-249-423-11	CARBON	3.3K	5%	1/6W	
R137	1-249-430-11	CARBON	12K	5%	1/6W	
R138	1-249-434-11	CARBON	27K	5%	1/6W	
R139	1-247-713-11	CARBON	1K	5%	1/4W	
R140	1-249-421-11	CARBON	2.2K	5%	1/6W	
R141	1-249-421-11	CARBON	2.2K	5%	1/6W	
R142	1-247-706-11	CARBON	330	5%	1/4W	
R143	1-249-429-11	CARBON	10K	5%	1/6W	
R144	1-249-437-11	CARBON	47K	5%	1/6W	
R145	1-249-417-11	CARBON	1K	5%	1/6W	
R146	1-249-417-11	CARBON	1K	5%	1/6W	
R147	1-249-405-11	CARBON	100	5%	1/6W	
R148	1-249-431-11	CARBON	15K	5%	1/6W	
R149	1-249-429-11	CARBON	10K	5%	1/6W	
R150	1-249-425-11	CARBON	4.7K	5%	1/6W	
R151	1-249-428-11	CARBON	8.2K	5%	1/6W	
R153	1-249-429-11	CARBON	10K	5%	1/6W	
R154	1-247-885-00	CARBON	180K	5%	1/6W	
R155	1-249-437-11	CARBON	47K	5%	1/6W	
R156	1-249-435-11	CARBON	33K	5%	1/6W	
R157	1-249-433-11	CARBON	22K	5%	1/6W	
R158	1-249-435-11	CARBON	33K	5%	1/6W	
R159	1-247-795-00	CARBON	33	5%	1/6W	
R160	1-247-795-00	CARBON	33	5%	1/6W	

BB **BA**

Ref.No.	Part No.	Description			Remark
R161	1-247-795-00	CARBON	33	5%	1/6W
R163	1-249-425-11	CARBON	4.7K	5%	1/6W

VARIABLE RESISTOR

Ref.No.	Part No.	Description
RV1	1-230-504-11	RES, ADJ, CARBON 220
RV2	1-230-504-11	RES, ADJ, CARBON 220
RV3	1-230-504-11	RES, ADJ, CARBON 220
RV4	1-228-997-00	RES, ADJ, CARBON 100K

SWITCH

Ref.No.	Part No.	Description
S1	1-553-716-00	SWITCH, SLIDE

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*A-1135-432-A BA BOARD, COMPLETE
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CONNECTOR

Ref.No.	Part No.	Description
BA1	*1-566-056-11	PIN, CONNECTOR 4P
BA2	*1-566-056-11	PIN, CONNECTOR 4P
BA3	*1-566-054-11	PIN, CONNECTOR 2P
BA4	*1-566-060-11	PIN, CONNECTOR 8P
BA5	*1-566-059-11	PIN, CONNECTOR 7P
BA6	*1-566-058-11	PIN, CONNECTOR 6P

CAPACITOR

Ref.No.	Part No.	Description			Remark
C108	1-123-356-00	ELECT	10MF	20%	16V
C115	1-123-356-00	ELECT	10MF	20%	16V
C119	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C120	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C121	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C122	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C123	1-123-380-00	ELECT	1MF	20%	50V
C124	1-123-356-00	ELECT	10MF	20%	16V
C127	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C128	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C129	1-123-379-00	ELECT	0.47MF	20%	50V
C130	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C131	1-136-165-00	FILM	0.1MF	5%	50V
C132	1-136-165-00	FILM	0.1MF	5%	50V
C133	1-124-631-11	ELECT	47MF	20%	16V
C134	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C135	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C136	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C137	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C138	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C139	1-136-153-00	FILM	0.01MF	5%	50V
C140	1-135-088-21	TANTAL. CHIP	2.2MF	10%	20V
C141	1-136-165-00	FILM	0.1MF	5%	50V
C142	1-136-165-00	FILM	0.1MF	5%	50V
C143	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C144	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C145	1-163-083-00	CERAMIC CHIP	1PF	0.25PF	50V
C146	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C147	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C148	1-123-356-00	ELECT	10MF	20%	16V
C149	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C150	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C151	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C152	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C153	1-136-157-00	FILM	0.022MF	5%	50V
C155	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C156	1-123-356-00	ELECT	10MF	20%	16V
C157	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C160	1-163-135-00	CERAMIC CHIP	560PF	10%	50V
C161	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C162	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C163	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C164	1-124-283-00	ELECT	4.7MF	20%	16V
C165	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C166	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C167	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C169	1-136-165-00	FILM	0.1MF	5%	50V
C170	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C172	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C173	1-136-165-00	FILM	0.1MF	5%	50V
C175	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C176	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C177	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C179	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C180	1-124-445-00	ELECT	100MF	20%	16V
C183	1-135-083-00	TANTAL. CHIP	0.47MF	10%	25V
C186	1-123-324-00	ELECT	1000MF	20%	16V
C188	1-123-356-00	ELECT	10MF	20%	16V
C189	1-123-356-00	ELECT	10MF	20%	16V
C195	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C200	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C201	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C202	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C203	1-124-283-00	ELECT	4.7MF	20%	16V
C204	1-135-088-21	TANTAL. CHIP	2.2MF	10%	20V
C205	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C206	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C207	1-163-379-11	CERAMIC CHIP	120PF	5%	50V
C208	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C209	1-163-183-00	CERAMIC CHIP	120PF	5%	50V
C210	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C211	1-136-153-00	FILM	0.01MF	5%	50V
C212	1-123-356-00	ELECT	10MF	20%	16V
C213	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C214	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C215	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C216	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C217	1-123-356-00	ELECT	10MF	20%	16V

Ref.No.	Part No.	Description			Remark
C236	1-123-356-00	ELECT	10MF	20%	16V
C237	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C238	1-123-332-00	ELECT	47MF	20%	16V
C244	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C245	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C247	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C248	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C401	1-124-791-11	ELECT	1MF	20%	50V
C402	1-123-356-00	ELECT	10MF	20%	16V
C403	1-124-480-11	ELECT	470MF	20%	25V
C404	1-123-356-00	ELECT	10MF	20%	16V
C405	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C406	1-123-356-00	ELECT	10MF	20%	16V
C407	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C408	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C409	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C410	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C411	1-123-332-00	ELECT	47MF	20%	16V
C412	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C413	1-123-332-00	ELECT	47MF	20%	16V
C414	1-123-356-00	ELECT	10MF	20%	16V
C415	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C416	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C417	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C418	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C419	1-124-445-00	ELECT	100MF	20%	16V
C420	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C421	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C422	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C423	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C424	1-136-160-00	FILM	0.039MF	5%	50V
C425	1-136-159-00	FILM	0.033MF	5%	50V
C426	1-123-356-00	ELECT	10MF	20%	16V
C427	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C428	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C429	1-124-900-11	ELECT	470MF	20%	35V

DIODE

Ref.No.	Part No.	Description	Remark
D101	8-719-100-03	DIODE 1S2835	
D102	8-719-100-05	DIODE 1S2837	
D103	8-719-100-03	DIODE 1S2835	
D104	8-719-100-05	DIODE 1S2837	
D105	8-719-100-03	DIODE 1S2835	
D106	8-719-100-03	DIODE 1S2835	
D107	8-719-100-05	DIODE 1S2837	
D108	8-719-100-05	DIODE 1S2837	
D110	8-719-100-03	DIODE 1S2835	
D111	8-719-100-03	DIODE 1S2835	
D113	8-719-100-03	DIODE 1S2835	
D115	8-719-100-03	DIODE 1S2835	
D116	8-719-101-23	DIODE 1SS123	
D122	8-719-100-03	DIODE 1S2835	
D125	8-719-100-03	DIODE 1S2835	
D401	8-719-100-05	DIODE 1S2837	
D402	8-719-100-03	DIODE 1S2835	
D407	8-719-105-82	DIODE RD5.1M-B2	
D408	8-719-100-03	DIODE 1S2835	
D409	8-719-911-19	DIODE 1SS119	

DELAY LINE

Ref.No.	Part No.	Description	Remark
DL102	1-415-188-00	DELAY LINE	
DL103	1-415-122-31	DELAY LINE, 1H (PAL)	
DL401	1-415-494-11	DELAY LINE, Y	
DL402	1-415-356-11	DELYA LINE, 1H	

IC

Ref.No.	Part No.	Description	Remark
IC101	8-752-006-10	IC CX20061	
IC102	8-752-006-10	IC CX20061	
IC103	8-759-113-65	IC UPC1365C	
IC104	8-759-140-24	IC UPD4024BC	
IC201	8-759-100-15	IC UPC1364C2	
IC401	8-759-170-12	IC UPC78M12H	
IC402	8-759-700-69	IC NJM79L12A	
IC403	8-759-014-96	IC MC1496P	
IC404	8-759-979-16	IC CX7916	

COIL

Ref.No.	Part No.	Description	Remark
L107	1-410-208-41	INDUCTOR CHIP 22UH	
L108	1-410-211-51	INDUCTOR CHIP 39UH	
L110	1-410-207-51	INDUCTOR CHIP 18UH	
L111	1-410-201-51	INDUCTOR CHIP 5.6UH	
L112	1-410-203-51	INDUCTOR CHIP 8.2UH	
L114	1-410-214-31	INDUCTOR CHIP 68UH	
L201	1-407-510-00	MICRO INDUCTOR 33MMH	
L202	1-410-068-11	MICRO INDUCTOR 5.6MMH	
L203	1-410-209-51	INDUCTOR CHIP 27UH	
L401	1-410-192-51	INDUCTOR CHIP 1UH	
L402	1-410-211-51	INDUCTOR CHIP 39UH	
L403	1-410-212-51	INDUCTOR CHIP 47UH	
L404	1-410-206-51	INDUCTOR CHIP 15UH	
L405	1-410-204-41	INDUCTOR CHIP 10UH	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q116	8-729-100-76	TRANSISTOR 2SA812	
Q117	8-729-901-03	TRANSISTOR DTC144WK	
Q118	8-729-901-03	TRANSISTOR DTC144WK	
Q120	8-729-901-03	TRANSISTOR DTC144WK	
Q121	8-729-100-76	TRANSISTOR 2SA812	
Q122	8-729-901-03	TRANSISTOR DTC144WK	
Q123	8-729-100-66	TRANSISTOR 2SC1623	
Q124	8-729-115-30	TRANSISTOR 2SK105A-30	
Q125	8-729-901-03	TRANSISTOR DTC144WK	
Q126	8-729-116-05	TRANSISTOR 2SK160-K5	
Q127	8-729-116-05	TRANSISTOR 2SK160-K5	
Q128	8-729-116-05	TRANSISTOR 2SK160-K5	
Q129	8-729-100-66	TRANSISTOR 2SC1623	
Q130	8-729-100-66	TRANSISTOR 2SC1623	
Q131	8-729-116-05	TRANSISTOR 2SK160-K5	

BA

Ref.No.	Part No.	Description	Remark
Q132	8-729-116-05	TRANSISTOR 2SK160-K5	
Q135	8-729-100-76	TRANSISTOR 2SA812	
Q136	8-729-100-76	TRANSISTOR 2SA812	
Q137	8-729-100-76	TRANSISTOR 2SA812	
Q138	8-729-100-76	TRANSISTOR 2SA812	
Q139	8-729-901-03	TRANSISTOR DTC144WK	
Q144	8-729-901-03	TRANSISTOR DTC144WK	
Q145	8-729-100-66	TRANSISTOR 2SC1623	
Q149	8-729-100-76	TRANSISTOR 2SA812	
Q150	8-729-100-76	TRANSISTOR 2SA812	
Q152	8-729-901-03	TRANSISTOR DTC144WK	
Q153	8-729-901-03	TRANSISTOR DTC144WK	
Q154	8-729-901-03	TRANSISTOR DTC144WK	
Q401	8-729-100-76	TRANSISTOR 2SA812	
Q402	8-729-100-66	TRANSISTOR 2SC1623	
Q403	8-729-100-66	TRANSISTOR 2SC1623	
Q404	8-729-100-76	TRANSISTOR 2SA812	
Q405	8-729-100-66	TRANSISTOR 2SC1623	
Q406	8-729-100-76	TRANSISTOR 2SA812	
Q407	8-729-100-66	TRANSISTOR 2SC1623	
Q408	8-729-100-76	TRANSISTOR 2SA812	
Q409	8-729-100-66	TRANSISTOR 2SC1623	
Q410	8-729-100-66	TRANSISTOR 2SC1623	
Q411	8-729-100-66	TRANSISTOR 2SC1623	
Q412	8-729-100-66	TRANSISTOR 2SC1623	
Q413	8-729-100-66	TRANSISTOR 2SC1623	
Q414	8-729-100-66	TRANSISTOR 2SC1623	
Q415	8-729-100-66	TRANSISTOR 2SC1623	
Q416	8-729-100-66	TRANSISTOR 2SC1623	
Q417	8-729-901-03	TRANSISTOR DTC144WK	
Q418	8-729-901-03	TRANSISTOR DTC144WK	
Q419	8-729-901-03	TRANSISTOR DTC144WK	
Q420	8-729-100-66	TRANSISTOR 2SC1623	
Q421	8-729-100-66	TRANSISTOR 2SC1623	
Q422	8-729-901-03	TRANSISTOR DTC144WK	
Q423	8-729-100-66	TRANSISTOR 2SC1623	
Q424	8-729-100-66	TRANSISTOR 2SC1623	
Q425	8-729-100-66	TRANSISTOR 2SC1623	
Q426	8-729-100-66	TRANSISTOR 2SC1623	
Q427	8-729-901-03	TRANSISTOR DTC144WK	
Q430	8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No.	Part No.	Description				Remark
JW100	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW101	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW102	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW103	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW120	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW124	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW131	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW132	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW133	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW134	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW135	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW136	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW137	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW138	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW139	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW140	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW141	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW142	1-216-295-00	METAL CHIP	0	5%	1/10W	
JW143	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW157	1-216-295-00	METAL CHIP	0	5%	1/10W	
R056	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R066	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R141	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R147	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R148	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R150	1-216-047-00	METAL CHIP	820	5%	1/10W	
R151	1-216-041-00	METAL CHIP	470	5%	1/10W	
R152	1-216-047-00	METAL CHIP	820	5%	1/10W	
R153	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R156	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R157	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R159	1-216-045-00	METAL CHIP	680	5%	1/10W	
R160	1-216-748-11	METAL CHIP	39K	5%	1/10W	
R165	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R167	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R168	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R173	1-216-214-00	METAL CHIP	4.7K	5%	1/8W	
R176	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R177	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R178	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R180	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R182	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R183	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R184	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R185	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R186	1-216-041-00	METAL CHIP	470	5%	1/10W	
R187	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R188	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R189	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R190	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R192	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R193	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R194	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R195	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R196	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R197	1-216-045-00	METAL CHIP	680	5%	1/10W	
R198	1-216-045-00	METAL CHIP	680	5%	1/10W	
R199	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R200	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R201	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R202	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W	

Ref.No.	Part No.	Description				Remark
R207	1-216-033-00	META'_ CHIP	220	5%	1/10W	
R208	1-216-073-00	META'_ CHIP	10K	5%	1/10W	
R210	1-216-033-00	META'_ CHIP	220	5%	1/10W	
R211	1-216-033-00	META'_ CHIP	220	5%	1/10W	
R212	1-216-063-00	META'_ CHIP	3.9K	5%	1/10W	
R213	1-216-033-00	META'_ CHIP	220	5%	1/10W	
R214	1-216-033-00	META'_ CHIP	220	5%	1/10W	
R215	1-216-065-00	META'_ CHIP	4.7K	5%	1/10W	
R216	1-216-097-00	META'_ CHIP	100K	5%	1/10W	
R217	1-216-097-00	META'_ CHIP	100K	5%	1/10W	
R218	1-216-073-00	META'_ CHIP	10K	5%	1/10W	
R219	1-216-067-00	META'_ CHIP	5.6K	5%	1/10W	
R220	1-216-085-00	META'_ CHIP	33K	5%	1/10W	
R221	1-216-088-00	META'_ CHIP	43K	5%	1/10W	
R222	1-216-093-00	META'_ CHIP	68K	5%	1/10W	
R223	1-216-067-00	META'_ CHIP	5.6K	5%	1/10W	
R230	1-216-065-00	META'_ CHIP	4.7K	5%	1/10W	
R231	1-216-091-00	META'_ CHIP	56K	5%	1/10W	
R232	1-216-039-00	META'_ CHIP	390	5%	1/10W	
R233	1-216-033-00	META'_ CHIP	220	5%	1/10W	
R234	1-216-033-00	META'_ CHIP	220	5%	1/10W	
R235	1-216-041-00	META'_ CHIP	470	5%	1/10W	
R236	1-216-025-00	META'_ CHIP	100	5%	1/10W	
R237	1-216-033-00	META'_ CHIP	220	5%	1/10W	
R238	1-216-085-00	META'_ CHIP	33K	5%	1/10W	
R240	1-216-056-00	META'_ CHIP	2K	5%	1/10W	
R241	1-216-081-00	META'_ CHIP	22K	5%	1/10W	
R242	1-216-072-00	META'_ CHIP	9.1K	5%	1/10W	
R245	1-216-083-00	META'_ CHIP	27K	5%	1/10W	
R246	1-216-073-00	META'_ CHIP	10K	5%	1/10W	
R247	1-216-107-00	META'_ CHIP	270K	5%	1/10W	
R249	1-216-089-00	META'_ CHIP	47K	5%	1/10W	
R250	1-216-073-00	META'_ CHIP	10K	5%	1/10W	
R251	1-216-073-00	META'_ CHIP	10K	5%	1/10W	
R252	1-216-071-00	META'_ CHIP	8.2K	5%	1/10W	
R253	1-216-061-00	META'_ CHIP	3.3K	5%	1/10W	
R254	1-216-073-00	META'_ CHIP	10K	5%	1/10W	
R255	1-216-049-00	META'_ CHIP	1K	5%	1/10W	
R256	1-216-220-00	META'_ CHIP	8.2K	5%	1/8W	
R258	1-216-057-00	META'_ CHIP	2.2K	5%	1/10W	
R259	1-216-071-00	META'_ CHIP	8.2K	5%	1/10W	
R262	1-216-097-00	META'_ CHIP	100K	5%	1/10W	
R270	1-216-045-00	META'_ CHIP	680	5%	1/10W	
R271	1-216-097-00	META'_ CHIP	100K	5%	1/10W	
R273	1-202-723-00	SO'_ID	2.2M	10%	1/2W	
R274	1-216-089-00	META'_ CHIP	47K	5%	1/10W	
R275	1-216-089-00	META'_ CHIP	47K	5%	1/10W	
R276	1-216-061-00	META'_ CHIP	3.3K	5%	1/10W	
R277	1-216-047-00	META'_ CHIP	820	5%	1/10W	
R278	1-216-057-00	META'_ CHIP	2.2K	5%	1/10W	
R279	1-216-085-00	META'_ CHIP	33K	5%	1/10W	
R280	1-216-089-00	META'_ CHIP	47K	5%	1/10W	
R281	1-216-077-00	META'_ CHIP	15K	5%	1/10W	
R282	1-249-421-11	CARBON	2.2K	5%	1/8W	F
R283	1-216-065-00	META'_ CHIP	4.7K	5%	1/10W	
R284	1-216-071-00	META'_ CHIP	8.2K	5%	1/10W	
R285	1-216-061-00	META'_ CHIP	3.3K	5%	1/10W	
R286	1-216-061-00	META'_ CHIP	3.3K	5%	1/10W	
R287	1-216-121-00	META'_ CHIP	1M	5%	1/10W	
R288	1-216-097-00	META'_ CHIP	100K	5%	1/10W	
R290	1-216-073-00	META'_ CHIP	10K	5%	1/10W	
R291	1-216-089-00	META'_ CHIP	47K	5%	1/10W	
R296	1-216-097-00	META'_ CHIP	100K	5%	1/10W	
R307	1-216-037-00	META'_ CHIP	330	5%	1/10W	
R308	1-216-083-00	META'_ CHIP	27K	5%	1/10W	
R311	1-216-090-00	META'_ CHIP	51K	5%	1/10W	
R313	1-216-065-00	META'_ CHIP	4.7K	5%	1/10W	
R315	1-216-053-00	META'_ CHIP	1.5K	5%	1/10W	
R316	1-216-053-00	META'_ CHIP	1.5K	5%	1/10W	
R317	1-216-045-00	META'_ CHIP	680	5%	1/10W	
R318	1-216-031-00	META'_ CHIP	180	5%	1/10W	
R326	1-216-063-00	META'_ CHIP	3.9K	5%	1/10W	
R332	1-216-091-00	META'_ CHIP	56K	5%	1/10W	
R348	1-216-075-00	META'_ CHIP	12K	5%	1/10W	
R401	1-216-083-00	META'_ CHIP	27K	5%	1/10W	
R402	1-216-073-00	META'_ CHIP	10K	5%	1/10W	
R403	1-216-071-00	META'_ CHIP	8.2K	5%	1/10W	
R404	1-216-046-00	META'_ CHIP	750	5%	1/10W	
R405	1-216-059-00	META'_ CHIP	2.7K	5%	1/10W	
R406	1-216-025-00	META'_ CHIP	100	5%	1/10W	
R407	1-216-059-00	META'_ CHIP	2.7K	5%	1/10W	
R408	1-216-097-00	META'_ CHIP	100K	5%	1/10W	
R409	1-216-045-00	META'_ CHIP	680	5%	1/10W	
R410	1-216-083-00	META'_ CHIP	27K	5%	1/10W	
R411	1-216-079-00	META'_ CHIP	18K	5%	1/10W	
R412	1-216-037-00	META'_ CHIP	330	5%	1/10W	
R413	1-216-103-00	META'_ CHIP	180K	5%	1/10W	
R414	1-216-057-00	META'_ CHIP	2.2K	5%	1/10W	
R415	1-216-069-00	META'_ CHIP	6.8K	5%	1/10W	
R416	1-216-055-00	META'_ CHIP	1.8K	5%	1/10W	
R417	1-216-071-00	META'_ CHIP	8.2K	5%	1/10W	
R418	1-216-025-00	META'_ CHIP	100	5%	1/10W	
R419	1-216-053-00	META'_ CHIP	1.5K	5%	1/10W	
R420	1-216-045-00	META'_ CHIP	680	5%	1/10W	
R421	1-216-025-00	META'_ CHIP	100	5%	1/10W	
R423	1-216-075-00	META'_ CHIP	12K	5%	1/10W	
R424	1-216-057-00	META'_ CHIP	2.2K	5%	1/10W	
R425	1-216-059-00	META'_ CHIP	2.7K	5%	1/10W	
R426	1-216-025-00	META'_ CHIP	100	5%	1/10W	
R427	1-216-045-00	META'_ CHIP	680	5%	1/10W	
R428	1-216-025-00	META'_ CHIP	100	5%	1/10W	
R429	1-216-091-00	META'_ CHIP	56K	5%	1/10W	
R430	1-216-083-00	META'_ CHIP	27K	5%	1/10W	
R431	1-216-025-00	META'_ CHIP	100	5%	1/10W	
R432	1-216-053-00	META'_ CHIP	1.5K	5%	1/10W	
R433	1-216-025-00	META'_ CHIP	100	5%	1/10W	

BA PA

Ref.No.	Part No.	Description				Remark
R434	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R435	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R436	1-216-025-00	METAL CHIP	100	5%	1/10W	
R437	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R438	1-216-196-00	METAL CHIP	820	5%	1/8W	
R439	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R440	1-216-234-00	METAL CHIP	33K	5%	1/8W	
R441	1-216-232-00	METAL CHIP	27K	5%	1/8W	
R442	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R443	1-216-041-00	METAL CHIP	470	5%	1/10W	
R444	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R445	1-216-045-00	METAL CHIP	680	5%	1/10W	
R446	1-216-041-00	METAL CHIP	470	5%	1/10W	
R447	1-216-045-00	METAL CHIP	680	5%	1/10W	
R448	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R449	1-216-045-00	METAL CHIP	680	5%	1/10W	
R450	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R451	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R452	1-216-045-00	METAL CHIP	680	5%	1/10W	
R453	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R454	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R455	1-216-045-00	METAL CHIP	680	5%	1/10W	
R456	1-216-045-00	METAL CHIP	680	5%	1/10W	
R457	1-216-041-00	METAL CHIP	470	5%	1/10W	
R458	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R459	1-216-037-00	METAL CHIP	330	5%	1/10W	
R460	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R461	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R462	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R463	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R464	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R465	1-216-025-00	METAL CHIP	100	5%	1/10W	
R466	1-247-725-11	CARBON	10K	5%	1/4W	
R467	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R468	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R469	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R470	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R471	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R472	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R473	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R479	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R480	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R481	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R482	1-216-025-00	METAL CHIP	100	5%	1/10W	
R483	1-216-025-00	METAL CHIP	100	5%	1/10W	
R484	1-216-025-00	METAL CHIP	100	5%	1/10W	
R485	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R486	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R487	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R488	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R489	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R490	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R491	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	

Ref.No.	Part No.	Description				Remark
R492	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R493	1-216-047-00	METAL CHIP	820	5%	1/10W	
R494	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R495	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R498	1-216-222-00	METAL CHIP	10K	5%	1/8W	
R499	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R500	1-216-200-00	METAL CHIP	1.2K	5%	1/8W	
R501	1-216-025-00	METAL CHIP	100	5%	1/10W	
R502	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R503	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R504	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R505	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R506	1-216-025-00	METAL CHIP	100	5%	1/10W	

VARIABLE RESISTOR

RV103	1-228-993-00	RES, ADJ, CARBON 4.7K
RV104	1-228-995-00	RES, ADJ, CARBON 22K
RV105	1-228-995-00	RES, ADJ, CARBON 22K
RV106	1-228-993-00	RES, ADJ, CARBON 4.7K
RV107	1-230-630-11	RES, ADJ, CARBON 10K
RV108	1-228-993-00	RES, ADJ, CARBON 4.7K
RV109	1-228-993-00	RES, ADJ, CARBON 4.7K
RV110	1-228-989-00	RES, ADJ, CARBON 470
RV111	1-228-996-00	RES, ADJ, CARBON 47K
RV403	1-228-990-00	RES, ADJ, CARBON 1K

TRANSFORMER

T102	1-404-495-00	COIL
T103	1-404-495-00	COIL
T104	1-404-524-11	DAT
T201	1-404-584-11	COIL
T202	1-408-532-00	COIL, VARIABLE
T203	1-408-532-00	COIL, VARIABLE
T204	1-408-513-00	COIL (VARIABLE)
T401	1-404-540-11	COIL

THERMISTOR

TH101	1-800-071-XX	THERMISTER THO.35K
TH201	1-800-626-00	THERMISTOR

CRYSTAL

X101	1-567-505-11	OSCILLATOR, CRYSTAL
X102	1-567-504-11	OSCILLATOR, CRYSTAL

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	*A-1190-110-A	PA BOARD, COMPLETE ******************
	*A-1190-113-A	PA BOARD, COMPLETE (Serial No. 5000501 and Later) ********************
	*4-363-146-00	HEAT SINK, V.OUT
	4-383-022-01	SPACER, MICA
	4-383-023-01	SPACER, MICA

CAPACITOR

Ref.No.	Part No.	Description			Remark
C1	1-123-933-00	ELECT	10MF	20%	160V
C2	1-123-024-00	ELECT	33MF		160V
C3	1-136-134-00	FILM	1.5MF	5%	400V
C4	1-106-383-00	MYLAR	0.047MF	10%	200V
C5	1-102-030-00	CERAMIC	330PF	10%	500V
C6	1-123-356-00	ELECT	10MF	20%	25V
C7	1-123-333-00	ELECT	100MF	20%	16V
C9	1-123-379-00	ELECT	0.47MF	20%	50V
C10	1-102-973-00	CERAMIC	100PF	5%	50V
C11	1-102-244-00	CERAMIC	220PF	10%	500V
C12	1-106-387-00	MYLAR	0.1MF	10%	200V
C13	1-123-379-00	ELECT	0.47MF	20%	50V
C14	1-102-973-00	CERAMIC	100PF	5%	50V
C15	1-102-244-00	CERAMIC	220PF	10%	500V
C16	1-106-387-00	MYLAR	0.1MF	10%	200V
C17	1-123-380-00	ELECT	1MF	20%	50V
C18	1-123-380-00	ELECT	1MF	20%	50V
C19	1-162-134-11	CERAMIC	470PF	10%	2KV
C20	1-126-150-11	ELECT	47MF	20%	350V
C22	1-106-220-00	MYLAR	0.1MF	10%	100V
C23	1-123-356-00	ELECT	10MF	20%	25V
C24	1-123-356-00	ELECT	10MF	20%	25V
C25	1-123-318-00	ELECT	33MF	20%	16V
C26	1-123-356-00	ELECT	10MF	20%	16V
C27	1-123-356-00	ELECT	10MF	20%	16V
C28	1-123-356-00	ELECT	10MF	20%	16V
C29	1-123-318-00	ELECT	33MF	20%	16V
C30	1-136-169-00	FILM	0.22MF	5%	50V
C31	1-123-356-00	ELECT	10MF	20%	16V
C32	1-123-318-00	ELECT	33MF	20%	16V
C33	1-123-356-00	ELECT	10MF	20%	16V
C34	⚠1-123-318-91	ELECT	33MF	20%	16V
C36	1-108-692-81	MYLAR	0.01MF	10%	200V
C37	1-123-356-00	ELECT	10MF	20%	16V
C39	1-102-824-00	CERAMIC	470PF	5%	50V
C40	1-108-427-00	MYLAR	0.033MF	10%	200V
C41	1-108-427-00	MYLAR	0.033MF	10%	200V
C42	1-123-321-00	ELECT	220MF	20%	16V
C43	1-123-321-00	ELECT	220MF	20%	16V
C44	1-123-325-00	ELECT	2200MF	20%	16V
C45	1-123-325-00	ELECT	2200MF	20%	16V
C46	1-123-932-00	ELECT	4.7MF	20%	160V
C47	1-123-369-00	ELECT	4.7MF	20%	25V
C48	1-123-369-00	ELECT	4.7MF	20%	25V
C49	1-101-006-00	CERAMIC	0.047MF		50V
C50	1-101-006-00	CERAMIC	0.047MF		50V
C51	1-123-024-00	ELECT	33MF		160V
C52	1-106-387-00	MYLAR	0.1MF	10%	200V
C53	1-162-134-11	CERAMIC	470PF	10%	2KV
C54	1-123-929-00	ELECT	1MF	20%	160V
C55	1-123-322-00	ELECT	330MF	20%	16V
C56	1-136-165-00	FILM	0.1MF	5%	50V
C57	1-136-165-00	FILM	0.1MF	5%	50V
		(Serial No. 5000501 and Later)			

DIODE

Ref.No.	Part No.	Description	Remark
D1	8-719-928-08	DIODE ERD28-08S	
D2	8-719-300-80	DIODE RU-1C	
D3	8-719-300-80	DIODE RU-1C	
D4	8-719-300-80	DIODE RU-1C	
D7	8-719-901-19	DIODE V11N	
D8	8-719-918-77	DIODE V19G	
D9	8-719-918-77	DIODE V19G	
D10	8-719-918-77	DIODE V19G	
D11	8-719-918-77	DIODE V19G	
D12	8-719-918-77	DIODE V19G	
D13	8-719-918-77	DIODE V19G	
D14	8-719-305-15	DIODE GH3F	
D15	8-719-109-85	DIODE RD5.1ES-B2	
D16	8-719-109-85	DIODE RD5.1ES-B2	
D17	8-719-109-85	DIODE RD5.1ES-B2	
D18	8-719-109-85	DIODE RD5.1ES-B2	
D20	8-719-911-19	DIODE 1SS119	
D21	8-719-911-19	DIODE 1SS119	
		(Serial No. 5000501 and Later)	
D22	8-719-911-19	DIODE 1SS119	
D23	8-719-911-19	DIODE 1SS119	
D24	8-719-911-19	DIODE 1SS119	
D25	8-719-911-19	DIODE 1SS119	
D26	8-719-911-19	DIODE 1SS119	
D28	8-719-911-19	DIODE 1SS119	
D29	8-719-911-19	DIODE 1SS119	
D30	8-719-911-19	DIODE 1SS119	
D31	8-719-911-19	DIODE 1SS119	
D32	8-719-911-19	DIODE 1SS119	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-990-82	IC TL082CP	
IC2	8-759-103-93	IC UPC393C	
IC3	8-759-103-93	IC UPC393C	
IC4	8-759-600-02	IC M5218L	
IC5	8-759-178-12	IC UPC78L12	

COIL

Ref.No.	Part No.	Description	Remark
L1	1-459-614-11	COIL, CHOKE 90UH	
L2	1-459-700-11	COIL, CHOKE 2.1MMH	
L3	1-459-155-00	COIL (WITH CORE) 45UH	

NEON LAMP

Ref.No.	Part No.	Description	Remark
NL2	1-519-237-11	LAMP, NEON	

CONNECTOR

Ref.No.	Part No.	Description	Remark
PA1	*1-566-058-11	PIN, CONNECTOR 6P	
PA2	*1-566-062-11	PIN, CONNECTOR 10P	
PA3	*1-508-768-00	6P PLUG	
PA4	*1-566-056-11	PIN, CONNECTOR 4P	
PA5	*1-566-057-11	PIN, CONNECTOR 5P	

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PA

Ref.No.	Part No.	Description				Remark
PA6	*1-566-054-11	PIN, CONNECTOR 2P				
PA7	*1-566-055-11	PIN, CONNECTOR 3P				
PA8	*1-566-059-11	PIN, CONNECTOR 7P				
PA9	*1-566-058-11	PIN, CONNECTOR 6P				
PA10	*1-566-058-11	PIN, CONNECTOR 6P				
PA11	*1-566-058-11	PIN, CONNECTOR 6P				
PA12	*1-508-786-00	2P PLUG (M)				
PA13	*1-508-786-00	2P PLUG (M)				
PA14	*1-508-766-00	4P PLUG (M)				
PA15	*1-566-054-11	PIN, CONNECTOR 2P				
		TRANSISTOR				
Q1	8-729-201-62	TRANSISTOR 2SC2555				
Q2	8-729-168-82	TRANSISTOR 2SC2688				
Q3	8-729-168-82	TRANSISTOR 2SC2688				
Q4	8-729-168-82	TRANSISTOR 2SC2688				
Q5	8-729-114-22	TRANSISTOR 2SA1142				
Q6	8-729-800-80	TRANSISTOR 2SD1399-CA				
Q7	8-729-117-54	TRANSISTOR 2SA1175				
Q8	8-729-178-54	TRANSISTOR 2SC2785				
Q9	8-729-178-54	TRANSISTOR 2SC2785				
Q10	8-729-178-54	TRANSISTOR 2SC2785				
Q11	8-729-178-54	TRANSISTOR 2SC2785				
Q12	8-729-178-54	TRANSISTOR 2SC2785				
Q13	8-729-804-48	TRANSISTOR 2SC3675				
Q14	8-729-117-54	TRANSISTOR 2SA1175				
		RESISTOR				
R1	1-216-378-11	METAL OXIDE	5.6	5%	2W	F
R2	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R3	1-249-429-11	CARBON	10K	5%	1/6W	
R4	1-215-920-11	METAL OXIDE	3.3K	5%	3W	F
R5	1-215-920-11	METAL OXIDE	3.3K	5%	3W	F
R6	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R7	1-249-417-11	CARBON	1K	5%	1/6W	
R9	1-249-417-11	CARBON	1K	5%	1/6W	
R10	1-249-423-11	CARBON	3.3K	5%	1/6W	
R11	1-249-420-11	CARBON	1.8K	5%	1/6W	F
R12	1-249-421-11	CARBON	2.2K	5%	1/6W	
R13	1-249-420-11	CARBON	1.8K	5%	1/6W	F
R15	1-249-441-11	CARBON	100K	5%	1/6W	
R16	1-249-441-11	CARBON	100K	5%	1/6W	
R17	1-216-359-00	METAL OXIDE	6.8	5%	1W	F
R18	1-215-443-00	METAL	8.2K	1%	1/6W	
R19	1-215-443-00	METAL	8.2K	1%	1/6W	
R20	1-215-441-00	METAL	6.8K	1%	1/6W	
R21	1-215-441-00	METAL	6.8K	1%	1/6W	
R22	1-214-747-00	METAL	5.6K	1%	1/4W	
☒R23 ⚠.	[illegible]	METAL	[illegible]	[illegible]	1/4W	[illegible]
R24	1-214-777-00	METAL	100K	1%	1/4W	
R25	1-215-471-00	METAL	120K	1%	1/6W	
R26	1-215-471-00	METAL	120K	1%	1/6W	
R27	1-215-453-00	METAL	22K	1%	1/6W	
R28	1-249-423-11	CARBON	3.3K	5%	1/6W	
R29	1-249-433-11	CARBON	22K	5%	1/6W	
R30	1-249-429-11	CARBON	10K	5%	1/6W	
R31	1-215-469-00	METAL	100K	1%	1/6W	
R32	1-249-423-11	CARBON	3.3K	5%	1/6W	
R33	1-215-429-00	METAL	2.2K	1%	1/6W	
R34	1-215-435-00	METAL	3.9K	1%	1/6W	
R35	1-249-423-11	CARBON	3.3K	5%	1/6W	
R36	1-249-417-11	CARBON	1K	5%	1/6W	
R37	1-215-473-00	CARBON	150K	5%	1/6W	
☒R38 ⚠.	[illegible]	CARBON	[illegible]	[illegible]	1/6W	[illegible]
☒R39 ⚠.		CARBON			1/6W	
R40	1-249-433-11	CARBON	22K	5%	1/6W	
R41	1-249-435-11	CARBON	33K	5%	1/6W	
R42	1-249-438-11	CARBON	56K	5%	1/6W	
R43	1-249-434-11	CARBON	27K	5%	1/6W	
R44	1-249-429-11	CARBON	10K	5%	1/6W	
R45	1-249-423-11	CARBON	3.3K	5%	1/6W	
R46	1-215-453-00	METAL	22K	1%	1/6W	
R47	1-215-455-00	METAL	27K	1%	1/6W	
☒R48 ⚠.	[illegible]	CARBON	[illegible]	[illegible]	1/6W	[illegible]
☒R49 ⚠.		CARBON			1/6W	
R50	1-215-469-00	METAL	100K	1%	1/6W	
R51	1-215-469-00	METAL	100K	1%	1/6W	
R52	1-249-430-11	CARBON	12K	5%	1/6W	
R53	1-249-433-11	CARBON	22K	5%	1/6W	
R54	1-249-433-11	CARBON	22K	5%	1/6W	
R55	1-249-430-11	CARBON	12K	5%	1/6W	
R56	1-249-419-11	CARBON	1.5K	5%	1/6W	
R57	1-249-473-11	CARBON	0.82	5%	1/2W	F
R58	1-244-937-00	CARBON	470K	5%	1/2W	
R59	1-217-202-11	WIREWOUND	1.5	10%	2W	F
R60	1-215-477-00	METAL	220K	1%	1/6W	
R61	1-215-457-00	METAL	33K	1%	1/6W	
R62	1-249-435-11	CARBON	33K	5%	1/6W	
R63	1-215-493-00	CARBON	1M	5%	1/6W	
R64	1-249-439-11	CARBON	68K	5%	1/6W	
R65	1-249-429-11	CARBON	10K	5%	1/6W	
R66	1-249-405-11	CARBON	100	5%	1/6W	
R67	1-215-453-00	METAL	22K	1%	1/6W	
R68	1-249-440-11	CARBON	82K	5%	1/6W	
R69	1-249-429-11	CARBON	10K	5%	1/6W	
R70	1-249-435-11	CARBON	33K	5%	1/6W	
R71	1-249-435-11	CARBON	33K	5%	1/6W	
R72	1-215-920-11	METAL OXIDE	3.3K	5%	3W	F
R73	1-246-523-00	CARBON	120K	5%	1/4W	
R74	1-249-429-11	CARBON	10K	5%	1/6W	
R75	1-202-730-00	SOLID	8.2M	10%	1/2W	
R76	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R77	1-249-417-11	CARBON	1K	5%	1/6W	
R78	1-249-433-11	CARBON	22K	5%	1/6W	F
R79	1-215-483-00	METAL	390K	1%	1/6W	
R80	1-249-423-11	CARBON	3.3K	5%	1/6W	

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Ref.No.	Part No.	Description	Remark
R81	1-202-597-91	SOLID 10K 5% 1/2W	
R82	1-249-423-11	CARBON 3.3K 5% 1/6W	
R83	1-249-425-11	CARBON 4.7K 5% 1/6W	
R84	1-249-417-11	CARBON 1K 5% 1/6W	
R85	1-215-469-00	METAL 100K 1% 1/6W (Serial No. 5000501 and Later)	
R86	1-215-469-00	METAL 100K 1% 1/6W (Serial No. 5000501 and Later)	
R87	1-215-453-00	METAL 22K 1% 1/6W (Serial No. 5000501 and Later)	
☒R88	⚠.	CARBON 1/6W (Serial No. 5000501 and Later)	
☒R89	⚠.	CARBON 1/6W (Serial No. 5000501 and Later)	
R90	1-249-417-11	CARBON 1K 5% 1/6W (Serial No. 5000501 and Later)	

SPARK GAP

Ref.No.	Part No.	Description	Remark
SG1	1-519-063-XX	DISCHARGING GAP	

TRANSFORMER

Ref.No.	Part No.	Description	Remark
T1	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE	
T2	1-437-090-00	HDT	
T3	⚠.1-437-078-11	TRANSFORMER, HORIZONTAL DRIVE	
T4	⚠.1-439-409-11	LOT	
T5	⚠.1-413-059-11	TRANSFORMER, FERRITE (DFT)	

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*1-621-054-11 PB BOARD
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CAPACITOR

Ref.No.	Part No.	Description	Remark
C1	1-124-257-00	ELECT 2.2MF 20% 50V	
C2	1-124-245-00	ELECT 4.7MF 20% 25V	
C3	1-136-159-00	FILM 0.033MF 5% 50V	
C5	1-102-106-00	CERAMIC 100PF 10% 50V	
C6	1-130-475-00	MYLAR 0.0022MF 5% 50V	
C7	1-123-617-00	ELECT 10MF 20% 16V	
C8	1-136-169-00	FILM 0.22MF 5% 50V	
C9	1-130-475-00	MYLAR 0.0022MF 5% 50V	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-100-75	IC UPC1394C	

RESISTOR

Ref.No.	Part No.	Description	Remark
R2	1-249-417-11	CARBON 1K 5% 1/6W	
R3	1-249-434-11	CARBON 27K 5% 1/6W	
R4	1-249-431-11	CARBON 15K 5% 1/6W	
R5	1-249-441-11	CARBON 100K 5% 1/6W	
R6	1-249-435-11	CARBON 33K 5% 1/6W	
R7	1-249-429-11	CARBON 10K 5% 1/6W	
R8	1-249-413-11	CARBON 470 5% 1/6W	
R9	1-249-428-11	CARBON 8.2K 5% 1/6W	
R10	1-249-437-11	CARBON 47K 5% 1/6W	
R11	1-249-440-11	CARBON 82K 5% 1/6W	
R12	1-249-436-11	CARBON 39K 5% 1/6W	
R14	1-249-428-11	CARBON 8.2K 5% 1/6W	

CONNECTOR

Ref.No.	Part No.	Description	Remark
W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P	
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P	

*1-621-050-11 PC BOARD
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CAPACITOR

Ref.No.	Part No.	Description	Remark
C1	⚠.1-130-660-11	FILM 20000MF 3% 1.6KV	
C2	⚠.1-136-134-11	FILM 1.5MF 5% 400V	

DIODE

Ref.No.	Part No.	Description	Remark
D1	8-719-305-15	DIODE GH3F	
D2	8-719-305-15	DIODE GH3F	

TRANSFORMER

Ref.No.	Part No.	Description	Remark
FBT1	⚠.1-439-408-11	TRANSFORMER ASSY, FLYBACK	
FBT2	⚠.1-439-408-11	TRANSFORMER ASSY, FLYBACK	

COIL

Ref.No.	Part No.	Description	Remark
L1	⚠.1-459-700-11	COIL, CHOKE 2.1MMH	
L2	⚠.1-459-700-11	COIL, CHOKE 2.1MMH	

NEON LAMP

Ref.No.	Part No.	Description	Remark
NL1	1-519-237-11	LAMP, NEON	

CONNECTOR

Ref.No.	Part No.	Description	Remark
PC1	*1-508-768-00	6P PLUG	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q1	8-729-208-10	TRANSISTOR 2SD1548	

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*1-621-056-11 FA BOARD
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CAPACITOR

Ref.No.	Part No.	Description	Remark
C1	1-136-360-00	FILM 0.22MF 20% 250V	
C2	1-136-360-00	FILM 0.22MF 20% 250V	
C3	1-136-360-00	FILM 0.22MF 20% 250V	
C4	1-162-599-12	CERAMIC 0.0047MF 20% 400V	
C5	1-162-599-12	CERAMIC 0.0047MF 20% 400V	
C6	1-161-742-00	CERAMIC 0.0022MF 20% 400V	
C7	1-161-742-00	CERAMIC 0.0022MF 20% 400V	
C8	1-125-469-11	ELECT(BLOCK) 820MF 20% 200V	
C9	1-125-469-11	ELECT(BLOCK) 820MF 20% 200V	
C10	1-101-003-00	CERAMIC 0.0047MF 50V	
C11	1-101-003-00	CERAMIC 0.0047MF 50V	
C12	1-123-362-00	ELECT 330MF 20% 50V	

DIODE

Ref.No.	Part No.	Description	Remark
D1	8-719-503-06	DIODE S3WB60Z	
D2	8-719-511-40	DIODE S1VB40	
D3	8-719-931-33	DIODE EQB01-33	

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FA FC QA

Ref.No.	Part No.	Description			Remark
		CONNECTOR			
FA1	*1-508-765-00	3P PLUG (M)			
FA2	*1-508-765-00	3P PLUG (M)			
FA3	*1-566-055-11	PIN, CONNECTOR 3P			
FA4	*1-508-786-00	2P PLUG (M)			
		COIL			
L1	1-459-595-11	COIL, CHOKE			
L2	1-459-595-11	COIL, CHOKE			
		RESISTOR			
R1	1-202-723-00	SOLID	2.2M	10%	1/2W
R2	⚠.1-205-798-11	CEMENTED	1.5	5%	20W
R3	1-244-929-00	CARBON	220K	5%	1/2W
R4	1-244-929-00	CARBON	220K	5%	1/2W
R5	1-249-405-11	CARBON	100	5%	1/6W
		SWITCH			
SW1	⚠.1-570-971-11	SWITCH, SLIDE			
		TRANSFORMER			
T1	1-421-944-11	TRANSFORMER, LINE FILTER			
T2	⚠.1-448-374-11	TRANSFORMER, POWER			
T3	1-421-776-11	LFT			

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	*1-621-058-11	FC BOARD ********			
	*1-533-146-00	HOLDER, FUSE			
		FUSE			
F1	⚠.1-532-299-11	FUSE, TIME-LAG 5A/250V			
		CONNECTOR			
FC1	*1-508-786-00	2P PLUG (M)			

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	*A-1270-201-A	QA BOARD, COMPLETE *******************			
	1-537-062-11	TERMINAL BOARD, INPUT/OUTPUT			
		CAPACITOR			
C1	1-124-963-11	ELECT	33MF	20%	16V
C3	1-124-645-11	ELECT	10MF	20%	16V
C4	1-101-006-00	CERAMIC	0.047MF		50V
C5	1-124-963-11	ELECT	33MF	20%	16V
C7	1-124-645-11	ELECT	10MF	20%	16V
C8	1-101-006-00	CERAMIC	0.047MF		50V
C9	1-124-963-11	ELECT	33MF	20%	16V
C11	1-124-645-11	ELECT	10MF	20%	16V

Ref.No.	Part No.	Description			Remark
C12	1-101-006-00	CERAMIC	0.047MF		50V
C13	1-124-963-11	ELECT	33MF	20%	16V
C14	1-102-973-00	CERAMIC	100PF	5%	50V
C15	1-124-445-00	ELECT	100MF	20%	16V
C16	1-124-963-11	ELECT	33MF	20%	16V
C17	1-102-973-00	CERAMIC	100PF	5%	50V
C18	1-124-445-00	ELECT	100MF	20%	16V
C19	1-123-356-00	ELECT	10MF	20%	16V
C20	1-108-843-91	MYLAR	0.033MF	10%	50V
C21	1-124-445-00	ELECT	100MF	20%	16V
C22	1-101-006-00	CERAMIC	0.047MF		50V
C23	1-124-119-00	ELECT	330MF	20%	16V
C24	1-101-006-00	CERAMIC	0.047MF		50V
C25	1-124-119-00	ELECT	330MF	20%	16V
C26	1-101-006-00	CERAMIC	0.047MF		50V
C27	1-124-445-00	ELECT	100MF	20%	16V
C28	1-123-321-00	ELECT	220MF	20%	16V
C29	1-124-963-11	ELECT	33MF	20%	16V
C30	1-124-475-11	ELECT	470MF	20%	16V
C31	1-124-475-11	ELECT	470MF	20%	16V
C32	1-124-445-00	ELECT	100MF	20%	16V
C33	1-123-356-00	ELECT	10MF	20%	16V
C34	1-101-006-00	CERAMIC	0.047MF		50V
C35	1-123-356-00	ELECT	10MF	20%	16V
C36	1-123-356-00	ELECT	10MF	20%	16V
C37	1-123-356-00	ELECT	10MF	20%	16V
C38	1-101-006-00	CERAMIC	0.047MF		50V
C39	1-124-963-11	ELECT	33MF	20%	16V
C40	1-108-837-00	MYLAR	0.01MF	10%	50V
C41	1-123-356-00	ELECT	10MF	20%	16V
C43	1-101-004-00	CERAMIC	0.01MF		50V
C44	1-123-356-00	ELECT	10MF	20%	16V
C45	1-101-004-00	CERAMIC	0.01MF		50V
C46	1-101-004-00	CERAMIC	0.01MF		50V
C47	1-101-880-00	CERAMIC	47PF	5%	50V
C48	1-102-527-00	CERAMIC	82PF	5%	50V
C49	1-123-380-00	ELECT	1MF	20%	50V
C50	1-124-555-00	ELECT	1000MF	20%	16V
C51	1-123-380-00	ELECT	1MF	20%	50V
C52	1-123-332-00	ELECT	47MF	20%	16V
C53	1-108-843-91	MYLAR	0.033MF	10%	50V
C54	1-123-356-00	ELECT	10MF	20%	25V
C55	1-123-356-00	ELECT	10MF	20%	16V
C56	1-123-380-00	ELECT	1MF	20%	50V
C57	1-102-965-00	CERAMIC	39PF	5%	50V
C58	⚠.1-101-006-91	CERAMIC	0.047MF		50V
		DIODE			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-911-19	DIODE 1SS119			
D3	8-719-911-19	DIODE 1SS119			
D4	8-719-911-19	DIODE 1SS119			
D5	8-719-911-19	DIODE 1SS119			

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QA

Ref.No.	Part No.	Description	Remark
D6	8-719-911-19	DIODE 1SS119	
D7	8-719-911-19	DIODE 1SS119	
D8	8-719-911-19	DIODE 1SS119	
D9	8-719-911-19	DIODE 1SS119	
D10	8-719-911-19	DIODE 1SS119	
D11	8-719-911-19	DIODE 1SS119	
D12	8-719-911-19	DIODE 1SS119	
D13	8-719-911-19	DIODE 1SS119	
D14	8-719-900-95	DIODE V09G	
D15	8-719-900-95	DIODE V09G	
D16	8-719-900-95	DIODE V09G	
D17	8-719-911-19	DIODE 1SS119	
D18	8-719-900-95	DIODE V09G	
D19	8-719-109-85	DIODE RD5.1ES-B2	
D20	8-719-911-19	DIODE 1SS119	
D21	8-719-911-19	DIODE 1SS119	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-103-93	IC UPC393C	
IC2	8-759-340-53	IC HD14053BP	
IC3	8-759-208-94	IC CX894	
IC4	8-759-208-94	IC CX894	
IC5	8-759-133-90	IC UPC339C	
IC6	8-757-948-00	IC CX7948	
IC7	8-759-700-14	IC NJM78M09A	
IC8	8-759-700-11	IC NJM78M05A	
IC9	8-759-170-12	IC UPC78M12H	
IC10	8-759-170-12	IC UPC78M12H	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q1	8-729-178-54	TRANSISTOR 2SC2785	
Q2	8-729-178-54	TRANSISTOR 2SC2785	
Q3	8-729-178-54	TRANSISTOR 2SC2785	
Q4	8-729-178-54	TRANSISTOR 2SC2785	
Q5	8-729-178-54	TRANSISTOR 2SC2785	
Q6	8-729-178-54	TRANSISTOR 2SC2785	
Q7	8-729-177-43	TRANSISTOR 2SD774	
Q8	8-729-178-54	TRANSISTOR 2SC2785	
Q9	8-729-103-43	TRANSISTOR 2SB734	
Q10	8-729-603-50	TRANSISTOR 2SC403SP	
Q11	8-729-603-50	TRANSISTOR 2SC403SP	
Q12	8-729-178-54	TRANSISTOR 2SC2785	
Q13	8-729-178-54	TRANSISTOR 2SC2785	
Q14	8-729-178-54	TRANSISTOR 2SC2785	
Q15	8-729-103-43	TRANSISTOR 2SB734	
Q16	8-729-178-54	TRANSISTOR 2SC2785	
Q17	8-729-103-43	TRANSISTOR 2SB734	
Q18	8-729-178-54	TRANSISTOR 2SC2785	
Q19	8-729-900-85	TRANSISTOR DTC144WS	

CONNECTOR

Ref.No.	Part No.	Description	Remark
QA1	*1-566-056-11	PIN, CONNECTOR 4P	
QA2	*1-566-054-11	PIN, CONNECTOR 2P	
QA3	*1-566-062-11	PIN, CONNECTOR 10P	
QA4	*1-566-064-11	PIN, CONNECTOR 12P	
QA5	*1-566-060-11	PIN, CONNECTOR 8P	
QA6	*1-566-055-11	PIN, CONNECTOR 3P	
QA7	*1-566-056-11	PIN, CONNECTOR 4P	
QA8	*1-566-059-11	PIN, CONNECTOR 7P	
QA9	*1-566-058-11	PIN, CONNECTOR 6P	
QA10	*1-566-056-11	PIN, CONNECTOR 4P	
QA12	*1-508-786-00	2P PLUG (M)	
QA13	*1-566-060-11	PIN, CONNECTOR 8P	
QA14	*1-566-060-11	PIN, CONNECTOR 8P	
QA15	*1-566-054-11	PIN, CONNECTOR 2P	
QA16	*1-566-054-11	PIN, CONNECTOR 2P	

RESISTOR

Ref.No.	Part No.	Description				Remark
R1	1-214-702-00	METAL	75	1%	1/4W	
R2	1-249-434-11	CARBON	27K	5%	1/6W	
R3	1-249-438-11	CARBON	56K	5%	1/6W	
R4	1-249-417-11	CARBON	1K	5%	1/6W	
R5	1-249-421-11	CARBON	2.2K	5%	1/6W	
R6	1-249-405-11	CARBON	100	5%	1/6W	
R7	1-249-393-11	CARBON	10	5%	1/6W	
R8	1-247-711-11	CARBON	680	5%	1/4W	
R9	1-214-702-00	METAL	75	1%	1/4W	
R10	1-249-434-11	CARBON	27K	5%	1/6W	
R11	1-249-438-11	CARBON	56K	5%	1/6W	
R12	1-249-417-11	CARBON	1K	5%	1/6W	
R13	1-249-421-11	CARBON	2.2K	5%	1/6W	
R14	1-249-405-11	CARBON	100	5%	1/6W	
R15	1-249-393-11	CARBON	10	5%	1/6W	
R16	1-247-711-11	CARBON	680	5%	1/4W	
R17	1-214-702-00	METAL	75	1%	1/4W	
R18	1-249-434-11	CARBON	27K	5%	1/6W	
R19	1-249-438-11	CARBON	56K	5%	1/6W	
R20	1-249-417-11	CARBON	1K	5%	1/6W	
R21	1-249-421-11	CARBON	2.2K	5%	1/6W	
R22	1-249-405-11	CARBON	100	5%	1/6W	
R23	1-249-393-11	CARBON	10	5%	1/6W	
R24	1-247-711-11	CARBON	680	5%	1/4W	
R25	1-214-702-00	METAL	75	1%	1/4W	
R26	1-249-417-11	CARBON	1K	5%	1/6W	
R27	1-249-439-11	CARBON	68K	5%	1/6W	
R28	1-249-420-11	CARBON	1.8K	5%	1/6W	
R29	1-249-437-11	CARBON	47K	5%	1/6W	
R30	1-214-702-00	METAL	75	1%	1/4W	
R31	1-249-417-11	CARBON	1K	5%	1/6W	
R32	1-249-439-11	CARBON	68K	5%	1/6W	
R33	1-249-420-11	CARBON	1.8K	5%	1/6W	
R34	1-249-437-11	CARBON	47K	5%	1/6W	
R35	1-249-410-11	CARBON	270	5%	1/6W	
R36	1-249-429-11	CARBON	10K	5%	1/6W	
R37	1-249-405-11	CARBON	100	5%	1/6W	
R38	1-249-465-11	CARBON	47K	5%	1/4W	

QA QB

Ref.No.	Part No.	Description				Remark
R39	1-249-437-11	CARBON	47K	5%	1/6W	
R40	1-249-438-11	CARBON	56K	5%	1/6W	
R41	1-249-417-11	CARBON	1K	5%	1/6W	
R42	1-249-417-11	CARBON	1K	5%	1/6W	
R43	1-249-417-11	CARBON	1K	5%	1/6W	
R44	1-247-713-11	CARBON	1K	5%	1/4W	
R45	1-249-417-11	CARBON	1K	5%	1/6W	
R46	1-249-423-11	CARBON	3.3K	5%	1/6W	
R47	1-249-419-11	CARBON	1.5K	5%	1/6W	
R48	1-249-423-11	CARBON	3.3K	5%	1/6W	
R49	1-249-424-11	CARBON	3.9K	5%	1/6W	
R50	1-249-439-11	CARBON	68K	5%	1/6W	
R51	1-249-423-11	CARBON	3.3K	5%	1/6W	
R52	1-249-403-11	CARBON	68	5%	1/6W	
R53	1-247-801-00	CARBON	56	5%	1/6W	
R54	1-249-417-11	CARBON	1K	5%	1/6W	
R55	1-249-417-11	CARBON	1K	5%	1/6W	
R56	1-249-417-11	CARBON	1K	5%	1/6W	
R57	1-247-793-00	CARBON	27	5%	1/6W	
R58	1-247-793-00	CARBON	27	5%	1/6W	
R59	1-247-793-00	CARBON	27	5%	1/6W	
R60	1-246-529-00	CARBON	220K	5%	1/4W	
R61	1-249-437-11	CARBON	47K	5%	1/6W	
R62	1-215-441-00	METAL	6.8K	1%	1/6W	
R63	1-215-447-00	METAL	12K	1%	1/6W	
R64	1-247-711-11	CARBON	680	5%	1/4W	
R65	1-215-441-00	METAL	6.8K	1%	1/6W	
R66	1-215-441-00	METAL	6.8K	1%	1/6W	
R67	1-247-711-11	CARBON	680	5%	1/4W	
R68	1-215-412-00	METAL	430	1%	1/6W	
R69	1-249-417-11	CARBON	1K	5%	1/6W	
R70	1-215-423-00	METAL	1.2K	1%	1/6W	
R71	1-249-439-11	CARBON	68K	5%	1/6W	
R72	1-249-436-11	CARBON	39K	5%	1/6W	
R73	1-249-405-11	CARBON	100	5%	1/6W	
R74	1-214-702-00	METAL	75	1%	1/4W	
R75	1-214-702-00	METAL	75	1%	1/4W	
R76	1-247-708-11	CARBON	470	5%	1/4W	
R77	1-249-429-11	CARBON	10K	5%	1/6W	
R78	1-214-702-00	METAL	75	1%	1/4W	
R79	1-249-405-11	CARBON	100	5%	1/6W	
R80	1-249-407-11	CARBON	150	5%	1/6W	
R81	1-249-407-11	CARBON	150	5%	1/6W	
R82	1-249-429-11	CARBON	10K	5%	1/6W	
R83	1-249-436-11	CARBON	39K	5%	1/6W	
R84	1-249-407-11	CARBON	150	5%	1/6W	
R85	1-249-429-11	CARBON	10K	5%	1/6W	
R86	1-249-429-11	CARBON	10K	5%	1/6W	
R87	1-249-429-11	CARBON	10K	5%	1/6W	
R88	1-249-429-11	CARBON	10K	5%	1/6W	
R89	1-249-433-11	CARBON	22K	5%	1/6W	
R90	1-249-433-11	CARBON	22K	5%	1/6W	
R91	1-249-433-11	CARBON	22K	5%	1/6W	

Ref.No.	Part No.	Description				Remark
R92	1-249-433-11	CARBON	22K	5%	1/6W	
R93	**⚠.1-247-851-91**	**CARBON**	**6.8K**	**5%**	**1/6W**	
R94	**⚠.1-247-855-91**	**CARBON**	**10K**	**5%**	**1/6W**	
R95	1-249-417-11	CARBON	1K	5%	1/6W	
R96	1-249-429-11	CARBON	10K	5%	1/6W	
R97	1-249-427-11	CARBON	6.8K	5%	1/6W	
R98	1-249-417-11	CARBON	1K	5%	1/6W	
R99	1-215-493-00	CARBON	1M	5%	1/6W	
R100	1-249-439-11	CARBON	68K	5%	1/6W	
R101	1-249-439-11	CARBON	68K	5%	1/6W	
R102	1-249-428-11	CARBON	8.2K	5%	1/6W	
R103	1-249-429-11	CARBON	10K	5%	1/6W	
R104	1-249-429-11	CARBON	10K	5%	1/6W	
R105	1-249-427-11	CARBON	6.8K	5%	1/6W	
R106	1-249-441-11	CARBON	100K	5%	1/6W	
R107	1-247-883-00	CARBON	150K	5%	1/6W	
R108	1-249-420-11	CARBON	1.8K	5%	1/6W	
R109	1-249-437-11	CARBON	47K	5%	1/6W	
R110	1-249-437-11	CARBON	47K	5%	1/6W	
R111	1-249-427-11	CARBON	6.8K	5%	1/6W	
R112	1-249-415-11	CARBON	680	5%	1/6W	
R113	1-247-721-11	CARBON	4.7K	5%	1/4W	
R114	1-249-416-11	CARBON	820	5%	1/6W	
R115	1-249-436-11	CARBON	39K	5%	1/6W	
R116	1-249-438-11	CARBON	56K	5%	1/6W	
R117	1-249-433-11	CARBON	22K	5%	1/6W	

CRYSTAL

X1	1-567-505-11	OSCILLATOR, CRYSTAL	

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*A-1270-202-A QB BOARD, COMPLETE
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1-536-991-11 TERMINAL BOARD, INPUT/OUTPUT

CAPACITOR

C201	1-102-114-00	CERAMIC	470PF	10%	50V	
C202	1-124-445-00	ELECT	100MF	20%	16V	
C203	1-101-004-00	CERAMIC	0.01MF		50V	
C204	1-123-380-00	ELECT	1MF	20%	50V	
C205	1-123-356-00	ELECT	10MF	20%	16V	
C206	1-102-114-00	CERAMIC	470PF	10%	50V	
C207	1-102-114-00	CERAMIC	470PF	10%	50V	
C208	1-123-380-00	ELECT	1MF	20%	50V	
C209	1-102-114-00	CERAMIC	470PF	10%	50V	
C210	1-102-114-00	CERAMIC	470PF	10%	50V	
C211	1-123-380-00	ELECT	1MF	20%	50V	
C212	1-124-002-11	ELECT	1MF	20%	50V	
C213	1-123-356-00	ELECT	10MF	20%	16V	
C214	1-102-114-00	CERAMIC	470PF	10%	50V	
C215	1-124-445-00	ELECT	100MF	20%	16V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

QB **CR**

Ref.No.	Part No.	Description				Remark
C216	1-123-332-00	ELECT	47MF	20%	16V	
C217	1-123-356-00	ELECT	10MF	20%	25V	
C218	1-123-369-00	ELECT	4.7MF	20%	25V	
C219	1-123-332-00	ELECT	47MF	20%	16V	
C220	1-123-332-00	ELECT	47MF	20%	16V	
C221	1-124-475-11	ELECT	470MF	20%	16V	
C222	1-124-475-11	ELECT	470MF	20%	16V	
C223	1-108-845-00	MYLAR	0.047MF	10%	50V	
C224	1-124-557-11	ELECT	1000MF	20%	25V	
C225	1-101-006-00	CERAMIC	0.047MF		50V	
C226	1-123-356-00	ELECT	10MF	20%	16V	
C227	1-123-356-00	ELECT	10MF	20%	16V	
C228	1-101-006-00	CERAMIC	0.047MF		50V	
C229	1-124-475-11	ELECT	470MF	20%	16V	

DIODE

Ref.No.	Part No.	Description
D201	8-719-110-36	DIODE RD13ES-B2
D202	8-719-911-19	DIODE 1SS119
D203	8-719-911-19	DIODE 1SS119
D204	8-719-911-19	DIODE 1SS119
D205	8-719-911-19	DIODE 1SS119
D206	8-719-911-19	DIODE 1SS119

IC

Ref.No.	Part No.	Description
IC201	8-759-103-93	IC UPC393C
IC202	8-759-208-94	IC CX894
IC203	8-759-800-59	IC LA2600
IC204	8-759-101-77	IC UPC1241H
IC205	8-759-708-09	IC NJM78L09A
IC206	8-759-170-12	IC UPC78M12H
IC207	8-759-700-24	IC NJM79M12A

TRANSISTOR

Ref.No.	Part No.	Description
Q201	8-729-178-54	TRANSISTOR 2SC2785
Q202	8-729-178-54	TRANSISTOR 2SC2785
Q203	8-729-117-54	TRANSISTOR 2SA1175
Q204	8-729-178-54	TRANSISTOR 2SC2785
Q205	8-729-900-85	TRANSISTOR DTC144WS
Q206	8-729-900-85	TRANSISTOR DTC144WS

CONNECTOR

Ref.No.	Part No.	Description
QB1	*1-566-056-11	PIN, CONNECTOR 4P
QB2	*1-566-054-11	PIN, CONNECTOR 2P
QB3	*1-566-060-11	PIN, CONNECTOR 8P
QB4	*1-566-056-11	PIN, CONNECTOR 4P
QB5	*1-566-055-11	PIN, CONNECTOR 3P
QB6	*1-566-055-11	PIN, CONNECTOR 3P
QB7	*1-566-055-11	PIN, CONNECTOR 3P

RESISTOR

Ref.No.	Part No.	Description				Remark
R201	1-249-438-11	CARBON	56K	5%	1/6W	
R202	1-249-423-11	CARBON	3.3K	5%	1/6W	
R203	1-249-433-11	CARBON	22K	5%	1/6W	
R204	1-249-438-11	CARBON	56K	5%	1/6W	
R205	1-249-430-11	CARBON	12K	5%	1/6W	
R206	1-249-437-11	CARBON	47K	5%	1/6W	
R207	1-249-433-11	CARBON	22K	5%	1/6W	
R208	1-249-433-11	CARBON	22K	5%	1/6W	
R209	1-249-438-11	CARBON	56K	5%	1/6W	
R210	1-249-429-11	CARBON	10K	5%	1/6W	
R211	1-249-435-11	CARBON	33K	5%	1/6W	
R212	1-249-438-11	CARBON	56K	5%	1/6W	
R213	1-249-429-11	CARBON	10K	5%	1/6W	
R214	1-249-435-11	CARBON	33K	5%	1/6W	
R215	1-249-437-11	CARBON	47K	5%	1/6W	
R216	1-249-437-11	CARBON	47K	5%	1/6W	
R217	1-249-437-11	CARBON	47K	5%	1/6W	
R218	1-247-887-00	CARBON	220K	5%	1/6W	
R219	1-249-429-11	CARBON	10K	5%	1/6W	
R220	1-249-419-11	CARBON	1.5K	5%	1/6W	
R221	1-247-813-00	CARBON	180	5%	1/6W	
R222	1-249-421-11	CARBON	2.2K	5%	1/6W	
R223	1-249-421-11	CARBON	2.2K	5%	1/6W	
R224	1-249-419-11	CARBON	1.5K	5%	1/6W	
R225	1-249-381-11	CARBON	1	5%	1/6W	F
R226	1-249-435-11	CARBON	33K	5%	1/6W	
R227	1-249-429-11	CARBON	10K	5%	1/6W	
R228	1-249-435-11	CARBON	33K	5%	1/6W	
R229	1-249-429-11	CARBON	10K	5%	1/6W	
R230	1-249-417-11	CARBON	1K	5%	1/6W	

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	*1-621-068-11	CR BOARD ********
	1-526-812-11	SOCKET, CRT
	1-556-880-81	LEAD ASSY, HIGH-VOLTAGE
	4-371-837-01	SPACER (TO-126), BN
	*4-383-071-01	BRACKET, TRANSISTOR

CAPACITOR

Ref.No.	Part No.	Description				Remark
C701	1-101-006-00	CERAMIC	0.047MF		50V	
C702	1-136-165-00	FILM	0.1MF	5%	50V	
C704 ⚠.	1-126-174-51	ELECT	10MF	20%	350V	
C705	1-102-050-00	CERAMIC	0.01MF		500V	
C706	1-162-115-00	CERAMIC	330PF	10%	2KV	
C707	1-162-115-00	CERAMIC	330PF	10%	2KV	
C708	1-108-833-00	MYLAR	0.0047MF	10%	50V	
C709	1-101-006-00	CERAMIC	0.047MF		50V	

CONNECTOR

Ref.No.	Part No.	Description
CR1	*1-508-784-00	1P PLUG
CR2	*1-508-786-00	2P PLUG (M)
CR3	*1-566-058-11	PIN, CONNECTOR 6P
CR4	*1-566-057-11	PIN, CONNECTOR 5P
CR5	*1-566-054-11	PIN, CONNECTOR 2P

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

CR CG

Ref.No.	Part No.	Description				Remark
		DIODE				
D701	8-719-911-19	DIODE 1SS119				
D702	8-719-911-19	DIODE 1SS119				
D703	8-719-911-19	DIODE 1SS119				
D704	8-719-911-19	DIODE 1SS119				
D705	8-719-911-19	DIODE 1SS119				
D706	8-719-911-19	DIODE 1SS119				
D707	8-719-110-36	DIODE RD13ES-B2				
		COIL				
L701	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L702	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L703	1-410-474-41	MICRO INDUCTOR 22UH				
L704	1-410-474-41	MICRO INDUCTOR 22UH				
		TRANSISTOR				
Q701	8-729-801-97	TRANSISTOR 2SC3503				
Q702	8-729-801-97	TRANSISTOR 2SC3503				
Q703	8-729-801-88	TRANSISTOR 2SA1381				
Q704	8-729-801-88	TRANSISTOR 2SA1381				
		RESISTOR				
R701	1-249-405-11	CARBON	100	5%	1/6W	F
R703	1-249-405-11	CARBON	100	5%	1/6W	F
R704	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R705	1-215-431-00	METAL	2.7K	1%	1/6W	
R706	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R707	1-247-700-11	CARBON	100	5%	1/4W	F
R708	1-202-561-00	SOLID	330	10%	1/2W	
R709	1-202-828-11	SOLID	6.8K		1/2W	
R710	1-202-847-00	SOLID	560K		1/2W	
R711	1-202-847-00	SOLID	560K		1/2W	
R712	1-202-814-11	SOLID	33K		1/2W	
R713	1-249-421-11	CARBON	2.2K	5%	1/6W	F
		SPARK GAP				
SG701	1-519-063-XX	DISCHARGING GAP				

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Ref.No.	Part No.	Description				Remark
	*1-621-069-11	CG BOARD ********				
	1-526-812-11	SOCKET, CRT				
	1-556-880-51	LEAD ASSY, HIGH-VOLTAGE				
	4-371-837-01	SPACER (TO-126), BN				
	*4-383-071-01	BRACKET, TRANSISTOR				
		CAPACITOR				
C721	1-101-006-00	CERAMIC	0.047MF		50V	
C722	1-136-165-00	FILM	0.1MF	5%	50V	
C724 ⚠.	1-126-174-51	ELECT	10MF	20%	350V	
C725	1-102-050-00	CERAMIC	0.01MF		500V	
C726	1-162-115-00	CERAMIC	330PF	10%	2KV	
C727	1-162-115-00	CERAMIC	330PF	10%	2KV	
C728	1-108-833-00	MYLAR	0.0047MF	10%	50V	
C729	1-101-006-00	CERAMIC	0.047MF		50V	
		CONNECTOR				
CG1	*1-508-784-00	1P PLUG				
CG2	*1-508-786-00	2P PLUG (M)				
CG3	*1-566-058-11	PIN, CONNECTOR 6P				
CG4	*1-566-057-11	PIN, CONNECTOR 5P				
CG5	*1-566-054-11	PIN, CONNECTOR 2P				
		DIODE				
D721	8-719-911-19	DIODE 1SS119				
D722	8-719-911-19	DIODE 1SS119				
D723	8-719-911-19	DIODE 1SS119				
D724	8-719-911-19	DIODE 1SS119				
D725	8-719-911-19	DIODE 1SS119				
D726	8-719-911-19	DIODE 1SS119				
D727	8-719-110-36	DIODE RD13ES-B2				
		COIL				
L721	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L722	1-407-364-00	COIL, SPOOK CHOKE 3.3UH				
L723	1-410-474-41	MICRO INDUCTOR 22UH				
L724	1-410-474-41	MICRO INDUCTOR 22UH				
		TRANSISTOR				
Q721	8-729-801-97	TRANSISTOR 2SC3503				
Q722	8-729-801-97	TRANSISTOR 2SC3503				
Q723	8-729-801-88	TRANSISTOR 2SA1381				
Q724	8-729-801-88	TRANSISTOR 2SA1381				
		RESISTOR				
R721	1-249-405-11	CARBON	100	5%	1/6W	F
R723	1-249-405-11	CARBON	100	5%	1/6W	F
R724	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R725	1-215-431-00	METAL	2.7K	1%	1/6W	
R726	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R727	1-247-700-11	CARBON	100	5%	1/4W	F
R728	1-202-561-00	SOLID	330	10%	1/2W	
R729	1-202-828-11	SOLID	6.8K		1/2W	
R730	1-202-847-00	SOLID	560K		1/2W	
R731	1-202-847-00	SOLID	560K		1/2W	
R732	1-202-814-11	SOLID	33K		1/2W	
R733	1-249-421-11	CARBON	2.2K	5%	1/6W	F
		SPARK GAP				
SG721	1-519-063-XX	DISCHARGING GAP				

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

CB **D**

Ref.No.	Part No.	Description				Remark
	*1-621-070-11	CB BOARD ********				
	1-526-812-11	SOCKET, CRT				
	1-556-880-51	LEAD ASSY, HIGH-VOLTAGE				
	4-371-837-01	SPACER (TO-126), BN				
	*4-383-071-01	BRACKET, TRANSISTOR				

CAPACITOR

Ref.No.	Part No.	Description				Remark
C741	1-101-006-00	CERAMIC	0.047MF		50V	
C742	1-136-165-00	FILM	0.1MF	5%	50V	
C744 ⚠	1-126-174-51	ELECT	10MF	20%	350V	
C745	1-102-050-00	CERAMIC	0.01MF		500V	
C746	1-162-115-00	CERAMIC	330PF	10%	2KV	
C747	1-162-115-00	CERAMIC	330PF	10%	2KV	
C748	1-108-833-00	MYLAR	0.0047MF	10%	50V	
C749	1-101-006-00	CERAMIC	0.047MF		50V	

CONNECTOR

Ref.No.	Part No.	Description	Remark
CB1	*1-508-784-00	1P PLUG	
CB2	*1-508-786-00	2P PLUG (M)	
CB3	*1-566-058-11	PIN, CONNECTOR 6P	
CB4	*1-566-057-11	PIN, CONNECTOR 5P	
CB5	*1-566-054-11	PIN, CONNECTOR 2P	

DIODE

Ref.No.	Part No.	Description	Remark
D741	8-719-911-19	DIODE 1SS119	
D742	8-719-911-19	DIODE 1SS119	
D743	8-719-911-19	DIODE 1SS119	
D744	8-719-911-19	DIODE 1SS119	
D745	8-719-911-19	DIODE 1SS119	
D746	8-719-911-19	DIODE 1SS119	
D747	8-719-110-36	DIODE RD13ES-B2	

COIL

Ref.No.	Part No.	Description	Remark
L741	1-407-364-00	COIL, SPOOK CHOKE 3.3UH	
L742	1-407-364-00	COIL, SPOOK CHOKE 3.3UH	
L743	1-410-474-41	MICRO INDUCTOR 22UH	
L744	1-410-474-41	MICRO INDUCTOR 22UH	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q741	8-729-801-97	TRANSISTOR 2SC3503	
Q742	8-729-801-97	TRANSISTOR 2SC3503	
Q743	8-729-801-88	TRANSISTOR 2SA1381	
Q744	8-729-801-88	TRANSISTOR 2SA1381	

RESISTOR

Ref.No.	Part No.	Description				Remark
R741	1-249-405-11	CARBON	100	5%	1/6W	F
R743	1-249-405-11	CARBON	100	5%	1/6W	F
R744	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R745	1-215-431-00	METAL	2.7K	1%	1/6W	
R746	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R747	1-247-700-11	CARBON	100	5%	1/4W	F
R748	1-202-561-00	SOLID	330	10%	1/2W	
R749	1-202-828-11	SOLID	6.8K		1/2W	
R750	1-202-847-00	SOLID	560K		1/2W	
R751	1-202-847-00	SOLID	560K		1/2W	
R752	1-202-814-11	SOLID	33K		1/2W	
R753	1-249-421-11	CARBON	2.2K	5%	1/6W	F

SPARK GAP

Ref.No.	Part No.	Description	Remark
SG741	1-519-063-XX	DISCHARGING GAP	

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Ref.No.	Part No.	Description	Remark
	*A-1340-919-A	D BOARD, COMPLETE *****************	
	*1-535-615-11	TERMINAL (LAMP SOCKET)	
	*4-378-621-01	RETAINER, TR	

CAPACITOR

Ref.No.	Part No.	Description				Remark
C1	1-101-004-00	CERAMIC	0.01MF		50V	
C2	1-123-333-00	ELECT	100MF	20%	25V	
C3	1-123-333-00	ELECT	100MF	20%	25V	
C4	1-123-333-00	ELECT	100MF	20%	16V	
C5	1-123-333-00	ELECT	100MF	20%	16V	
C6	1-102-947-00	CERAMIC	10PF	5%	50V	
C7	1-123-381-00	ELECT	2.2MF	20%	50V	
C8	1-101-361-00	CERAMIC	150PF	5%	50V	
C9	1-130-483-00	MYLAR	0.01MF	5%	50V	
C10	1-130-495-00	MYLAR	0.1MF	5%	50V	
C12	1-123-381-00	ELECT	2.2MF	20%	50V	
C13	1-130-487-00	MYLAR	0.022MF	5%	50V	
C14	1-123-356-00	ELECT	10MF	20%	16V	
C15	1-123-323-00	ELECT	470MF	20%	16V	
C16	1-101-006-00	CERAMIC	0.047MF		50V	
C17	1-123-380-00	ELECT	1MF	20%	50V	
C18	1-130-483-00	MYLAR	0.01MF	5%	50V	
C19	1-130-868-00	FILM	0.0056MF	5%	50V	
C20	1-123-380-00	ELECT	1MF	20%	50V	
C21	1-123-369-00	ELECT	4.7MF	20%	25V	
C22	1-123-356-00	ELECT	10MF	20%	16V	
C23	1-123-323-00	ELECT	470MF	20%	16V	
C24	1-106-361-00	MYLAR	0.0056MF	10%	100V	
C25	1-123-380-00	ELECT	1MF	20%	50V	
C26	1-108-812-91	MYLAR	0.047MF	5%	50V	
C27	1-130-483-00	MYLAR	0.01MF	5%	50V	
C28	1-130-487-00	MYLAR	0.022MF	5%	50V	
C29	1-123-379-00	ELECT	0.47MF	20%	50V	
C30	1-136-173-00	FILM	0.47MF	5%	50V	
C31	1-108-812-91	MYLAR	0.047MF	5%	50V	
C32	1-123-321-00	ELECT	220MF	20%	16V	
C33	1-106-172-00	MYLAR	0.001MF	5%	50V	
C34	1-101-004-00	CERAMIC	0.01MF		50V	
C36	1-130-483-00	MYLAR	0.01MF	5%	50V	
C37	1-131-373-00	TANTALUM	22MF	10%	16V	
C38	1-123-318-00	ELECT	33MF	20%	16V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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Ref.No.	Part No.	Description			Remark
C39	1-130-495-00	MYLAR	0.1MF	5%	50V
C40	1-124-463-00	ELECT	0.1MF	20%	50V
C41	1-101-361-00	CERAMIC	150PF	5%	50V
C43	1-124-463-00	ELECT	0.1MF	20%	50V
C44	1-123-356-00	ELECT	10MF	20%	16V
C45	1-102-824-00	CERAMIC	470PF	5%	50V
C46	1-102-030-00	CERAMIC	330PF	10%	500V
C47	1-130-483-00	MYLAR	0.01MF	5%	50V
C48	1-101-004-00	CERAMIC	0.01MF		50V
C49	1-101-004-00	CERAMIC	0.01MF		50V
C50	1-123-369-00	ELECT	4.7MF	20%	25V
C51	1-123-661-00	ELECT	100MF	20%	6.3V
C52	1-123-661-00	ELECT	100MF	20%	6.3V
C53	1-123-617-00	ELECT	10MF	20%	16V
C54	1-101-004-00	CERAMIC	0.01MF		50V
C55	1-124-236-00	ELECT	47MF	20%	16V
C56	1-124-236-00	ELECT	47MF	20%	16V
C57	1-101-004-00	CERAMIC	0.01MF		50V
C58	1-123-661-00	ELECT	100MF	20%	6.3V
C59	1-123-661-00	ELECT	100MF	20%	6.3V
C60	1-123-617-00	ELECT	10MF	20%	16V
C61	1-123-617-00	ELECT	10MF	20%	16V
C62	1-123-617-00	ELECT	10MF	20%	16V
C63	1-124-236-00	ELECT	47MF	20%	16V
C64	1-124-236-00	ELECT	47MF	20%	16V
C65	1-101-004-00	CERAMIC	0.01MF		50V
C66	1-101-004-00	CERAMIC	0.01MF		50V
C67	1-123-321-00	ELECT	220MF	20%	16V
C68	1-123-321-00	ELECT	220MF	20%	16V
C69	1-123-333-00	ELECT	100MF	20%	16V
C70	1-123-333-00	ELECT	100MF	20%	16V
C72	1-136-161-00	FILM	0.047MF	5%	50V
C73	1-101-004-00	CERAMIC	0.01MF		50V
C74	1-101-004-00	CERAMIC	0.01MF		50V
C75	1-102-316-00	CERAMIC	15PF	5%	500V
C76	1-108-692-81	MYLAR	0.01MF	10%	200V
C77	1-106-383-00	MYLAR	0.047MF	10%	200V
C78	1-123-356-00	ELECT	10MF	20%	16V
C79	1-123-356-00	ELECT	10MF	20%	16V
C80	1-136-161-00	FILM	0.047MF	5%	50V
C81	1-136-161-00	FILM	0.047MF	5%	50V
C82	1-101-004-00	CERAMIC	0.01MF		50V
C83	1-101-004-00	CERAMIC	0.01MF		50V
C84	1-102-316-00	CERAMIC	15PF	5%	500V
C85	1-108-692-81	MYLAR	0.01MF	10%	200V
C86	1-102-316-00	CERAMIC	15PF	5%	500V
C87	1-108-692-81	MYLAR	0.01MF	10%	200V
C88	1-123-381-00	ELECT	2.2MF	20%	50V
C89	1-124-645-11	ELECT	10MF	20%	16V
C401	1-123-619-00	ELECT	4.7MF	20%	50V
C402	1-123-619-00	ELECT	4.7MF	20%	50V
C403	1-123-619-00	ELECT	4.7MF	20%	50V
C404	1-123-619-00	ELECT	4.7MF	20%	50V

Ref.No.	Part No.	Description	Remark
		CONNECTOR	
D1	*1-566-055-11	PIN, CONNECTOR 3P	
D2	*1-566-055-11	PIN, CONNECTOR 3P	
D3	*1-566-055-11	PIN, CONNECTOR 3P	
D4	*1-566-055-11	PIN, CONNECTOR 3P	
D5	*1-566-055-11	PIN, CONNECTOR 3P	
D6	*1-566-055-11	PIN, CONNECTOR 3P	
D7	*1-566-056-11	PIN, CONNECTOR 4P	
D8	*1-566-056-11	PIN, CONNECTOR 4P	
D9	*1-566-056-11	PIN, CONNECTOR 4P	
D10	*1-566-059-11	PIN, CONNECTOR 7P	
D11	*1-566-054-11	PIN, CONNECTOR 2P	
D12	*1-566-054-11	PIN, CONNECTOR 2P	
D13	*1-566-058-11	PIN, CONNECTOR 6P	
D14	*1-566-055-11	PIN, CONNECTOR 3P	
D15	*1-566-060-11	PIN, CONNECTOR 8P	
D16	*1-566-054-11	PIN, CONNECTOR 2P	
D17	*1-566-060-11	PIN, CONNECTOR 8P	
D18	*1-566-058-11	PIN, CONNECTOR 6P	
D19	*1-566-054-11	PIN, CONNECTOR 2P	
D20	*1-566-064-11	PIN, CONNECTOR 12P	
D21	*1-566-060-11	PIN, CONNECTOR 8P	
D22	*1-566-055-11	PIN, CONNECTOR 3P	
D23	*1-566-060-11	PIN, CONNECTOR 8P	
D24	*1-566-060-11	PIN, CONNECTOR 8P	
D25	*1-566-054-11	PIN, CONNECTOR 2P	
		DIODE	
D1	8-719-911-19	DIODE 1SS119	
D2	8-719-911-19	DIODE 1SS119	
D3	8-719-911-19	DIODE 1SS119	
D4	8-719-911-19	DIODE 1SS119	
D5	8-719-109-85	DIODE RD5.1ES-B2	
D6	8-719-911-19	DIODE 1SS119	
D7	8-719-911-19	DIODE 1SS119	
D8	8-719-911-19	DIODE 1SS119	
D9	8-719-911-19	DIODE 1SS119	
D10	8-719-911-19	DIODE 1SS119	
D11	8-719-911-19	DIODE 1SS119	
D12	8-719-911-19	DIODE 1SS119	
D13	8-719-110-36	DIODE RD13ES-B2	
D14	8-719-911-19	DIODE 1SS119	
D15	8-719-911-19	DIODE 1SS119	
D16	8-719-911-19	DIODE 1SS119	
D17	8-719-911-19	DIODE 1SS119	
D401	8-719-110-42	DIODE RD15ES-B3	
D402	8-719-110-36	DIODE RD13ES-B2	
D403	8-719-110-36	DIODE RD13ES-B2	
D404	8-719-110-36	DIODE RD13ES-B2	
D405	8-719-110-36	DIODE RD13ES-B2	
D406	8-719-110-36	DIODE RD13ES-B2	
D407	8-719-110-36	DIODE RD13ES-B2	
D408	8-719-110-36	DIODE RD13ES-B2	

Ref.No.	Part No.	Description	Remark
D409	8-719-110-36	DIODE RD13ES-B2	
D410	8-719-110-36	DIODE RD13ES-B2	
D411	8-719-110-36	DIODE RD13ES-B2	
D412	8-719-110-36	DIODE RD13ES-B2	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-100-60	IC UPC1377C	
IC2	8-749-911-21	IC BX1121	
IC3	8-759-340-53	IC HD14053BP	
IC4	8-759-170-12	IC UPC78M12H	
IC5	8-759-700-24	IC NJM79M12A	
IC6	8-759-178-12	IC UPC78L12	
IC7	8-759-178-12	IC UPC78L12	
IC8	8-759-600-02	IC M5218L	
IC9	8-741-112-20	IC BX1122	
IC10	8-759-340-52	IC HD14052BP	
IC11	8-759-600-02	IC M5218L	
IC12	8-759-600-02	IC M5218L	
IC13	8-759-600-02	IC M5218L	
IC14	8-759-110-37	IC UPC1037H	
IC15	8-759-110-37	IC UPC1037H	
IC16	8-759-170-08	IC UPC78M08H	
IC17	8-759-700-22	IC NJM79M08A	
IC18	8-759-145-58	IC UPC4558C	
IC19	8-759-145-58	IC UPC4558C	
IC401	8-759-340-53	IC HD14053BP	
IC402	8-759-340-53	IC HD14053BP	
IC403	8-759-340-53	IC HD14053BP	

PILOT LAMP

Ref.No.	Part No.	Description	Remark
PL1	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
PL2	1-518-590-11	LAMP, PILOT (WITH HOLDER)	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q1	8-729-178-54	TRANSISTOR 2SC2785	
Q2	8-729-178-54	TRANSISTOR 2SC2785	
Q3	8-729-178-54	TRANSISTOR 2SC2785	
Q4	8-729-178-54	TRANSISTOR 2SC2785	
Q5	8-729-178-54	TRANSISTOR 2SC2785	
Q6	8-729-178-54	TRANSISTOR 2SC2785	
Q7	8-729-238-32	TRANSISTOR 2SC2383	
Q8	8-729-201-78	TRANSISTOR 2SD1406	
Q9	8-729-202-02	TRANSISTOR 2SB1015	
Q10	8-729-238-32	TRANSISTOR 2SC2383	
Q11	8-729-201-78	TRANSISTOR 2SD1406	
Q12	8-729-202-02	TRANSISTOR 2SB1015	
Q13	8-729-238-32	TRANSISTOR 2SC2383	
Q14	8-729-201-78	TRANSISTOR 2SD1406	
Q15	8-729-202-02	TRANSISTOR 2SB1015	
Q16	8-729-178-54	TRANSISTOR 2SC2785	
Q17	8-729-178-54	TRANSISTOR 2SC2785	
Q18	8-729-178-54	TRANSISTOR 2SC2785	
Q19	8-729-178-54	TRANSISTOR 2SC2785	
Q20	8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No.	Part No.	Description	Remark
R1	1-215-457-00	METAL 33K 1% 1/6W	
R2	1-215-467-00	METAL 82K 1% 1/6W	
R3	1-247-881-00	CARBON 120K 5% 1/6W	
R4	1-249-417-11	CARBON 1K 5% 1/6W	
R5	1-249-423-11	CARBON 3.3K 5% 1/6W	
R6	1-249-434-11	CARBON 27K 5% 1/6W	
R7	1-249-425-11	CARBON 4.7K 5% 1/6W	
R8	1-249-421-11	CARBON 2.2K 5% 1/6W	
R9	1-215-447-00	METAL 12K 1% 1/6W	
R10	1-249-417-11	CARBON 1K 5% 1/6W	
R11	1-215-445-00	METAL 10K 1% 1/6W	
R12	1-215-437-00	METAL 4.7K 1% 1/6W	
R13	1-249-417-11	CARBON 1K 5% 1/6W	
R14	1-249-441-11	CARBON 100K 5% 1/6W	
R15	1-215-447-00	METAL 12K 1% 1/6W	
R16	1-215-493-00	CARBON 1M 5% 1/6W	
R17	1-215-493-00	CARBON 1M 5% 1/6W	
R18	1-249-441-11	CARBON 100K 5% 1/6W	
R19	1-249-405-11	CARBON 100 5% 1/6W	
R20	1-249-417-11	CARBON 1K 5% 1/6W	
R21	1-247-895-00	CARBON 470K 5% 1/6W	
R22	1-249-417-11	CARBON 1K 5% 1/6W	
R23	1-215-467-00	METAL 82K 1% 1/6W	
R24	1-215-467-00	METAL 82K 1% 1/6W	
R25	1-249-423-11	CARBON 3.3K 5% 1/6W	
R26	1-249-433-11	CARBON 22K 5% 1/6W	
R27	1-249-431-11	CARBON 15K 5% 1/6W	
R28	1-249-428-11	CARBON 8.2K 5% 1/6W	
R29	1-249-409-11	CARBON 220 5% 1/6W	
R30	1-249-411-11	CARBON 330 5% 1/6W	
R31	1-249-417-11	CARBON 1K 5% 1/6W	
R32	1-249-417-11	CARBON 1K 5% 1/6W	
R33	1-215-458-00	METAL 36K 1% 1/6W	
R34	1-249-435-11	CARBON 33K 5% 1/6W	
R35	1-249-435-11	CARBON 33K 5% 1/6W	
R36	1-249-435-11	CARBON 33K 5% 1/6W	
R37	1-249-421-11	CARBON 2.2K 5% 1/6W	
R38	1-249-424-11	CARBON 3.9K 5% 1/6W	
R39	1-249-418-11	CARBON 1.2K 5% 1/6W	
R40	1-249-438-11	CARBON 56K 5% 1/6W	
R41	1-249-430-11	CARBON 12K 5% 1/6W	
R42	1-215-448-00	METAL 13K 1% 1/6W	
R43	1-215-463-00	METAL 56K 1% 1/6W	
R44	1-215-439-00	METAL 5.6K 1% 1/6W	
R45	1-215-439-00	METAL 5.6K 1% 1/6W	
R46	1-215-449-00	METAL 15K 1% 1/6W	
R47	1-249-441-11	CARBON 100K 5% 1/6W	
R48	1-249-433-11	CARBON 22K 5% 1/6W	
R49	1-249-417-11	CARBON 1K 5% 1/6W	
R50	1-249-428-11	CARBON 8.2K 5% 1/6W	

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Ref.No.	Part No.	Description				Remark
R51	1-249-405-11	CARBON	100	5%	1/6W	
R52	1-247-813-00	CARBON	180	5%	1/6W	
R53	1-249-427-11	CARBON	6.8K	5%	1/6W	
R54	1-215-415-00	METAL	560	1%	1/6W	
R55	1-215-415-00	METAL	560	1%	1/6W	
R56	1-249-405-11	CARBON	100	5%	1/6W	
R57	1-215-413-00	METAL	470	1%	1/6W	
R58	1-249-429-11	CARBON	10K	5%	1/6W	
R59	1-214-971-00	METAL	2M	1%	1/4W	
R60	1-215-467-00	METAL	82K	1%	1/6W	
R62	1-215-439-00	METAL	5.6K	1%	1/6W	
R63	1-215-431-00	METAL	2.7K	1%	1/6W	
R64	1-249-417-11	CARBON	1K	5%	1/6W	
R65	1-249-429-11	CARBON	10K	5%	1/6W	
R66	1-249-417-11	CARBON	1K	5%	1/6W	
R67	1-249-429-11	CARBON	10K	5%	1/6W	
R68	1-249-429-11	CARBON	10K	5%	1/6W	
R69	1-215-457-00	METAL	33K	1%	1/6W	
R70	1-215-421-00	METAL	1K	1%	1/6W	
R71	1-249-429-11	CARBON	10K	5%	1/6W	
R72	1-249-429-11	CARBON	10K	5%	1/6W	
R73	1-249-429-11	CARBON	10K	5%	1/6W	
R74	1-249-411-11	CARBON	330	5%	1/6W	
R75	1-249-411-11	CARBON	330	5%	1/6W	
R76	1-249-429-11	CARBON	10K	5%	1/6W	
R77	1-215-453-00	METAL	22K	1%	1/6W	
R78	1-215-443-00	METAL	8.2K	1%	1/6W	
R79	1-215-429-00	METAL	2.2K	1%	1/6W	
R80	1-215-437-00	METAL	4.7K	1%	1/6W	
R81	1-215-443-00	METAL	8.2K	1%	1/6W	
R82	1-215-453-00	METAL	22K	1%	1/6W	
R83	1-215-429-00	METAL	2.2K	1%	1/6W	
R84	1-215-437-00	METAL	4.7K	1%	1/6W	
R85	1-215-463-00	METAL	56K	1%	1/6W	
R86	1-215-445-00	METAL	10K	1%	1/6W	
R87	1-215-445-00	METAL	10K	1%	1/6W	
R88	1-249-429-11	CARBON	10K	5%	1/6W	
R89	1-215-445-00	METAL	10K	1%	1/6W	
R90	1-215-445-00	METAL	10K	1%	1/6W	
R91	1-249-429-11	CARBON	10K	5%	1/6W	
R92	1-215-449-00	METAL	15K	1%	1/6W	
R93	1-215-449-00	METAL	15K	1%	1/6W	
R94	1-215-461-00	METAL	47K	1%	1/6W	
R95	1-215-461-00	METAL	47K	1%	1/6W	
R96	1-215-451-00	METAL	18K	1%	1/6W	
R97	1-215-413-00	METAL	470	1%	1/6W	
R98	1-215-429-00	METAL	2.2K	1%	1/6W	
R99	1-215-417-00	METAL	680	1%	1/6W	
R100	1-247-887-00	CARBON	220K	5%	1/6W	
R101	1-249-429-11	CARBON	10K	5%	1/6W	
R102	1-215-451-00	METAL	18K	1%	1/6W	
R103	1-215-413-00	METAL	470	1%	1/6W	
R104	1-215-429-00	METAL	2.2K	1%	1/6W	
R105	1-215-417-00	METAL	680	1%	1/6W	
R106	1-247-887-00	CARBON	220K	5%	1/6W	
R107	1-247-104-00	CARBON	75	5%	1/4W	
R108	1-249-429-11	CARBON	10K	5%	1/6W	
R109	1-215-417-00	METAL	680	1%	1/6W	
R110	1-249-405-11	CARBON	100	5%	1/6W	
R111	1-215-415-00	METAL	560	1%	1/6W	
R112	1-249-429-11	CARBON	10K	5%	1/6W	
R113	1-215-445-00	METAL	10K	1%	1/6W	
R114	1-215-457-00	METAL	33K	1%	1/6W	
R115	1-215-457-00	METAL	33K	1%	1/6W	
R116	1-215-457-00	METAL	33K	1%	1/6W	
R117	1-215-459-00	METAL	39K	1%	1/6W	
R118	1-215-459-00	METAL	39K	1%	1/6W	
R119	1-215-459-00	METAL	39K	1%	1/6W	
R120	1-215-479-00	METAL	270K	1%	1/6W	
R121	1-215-469-00	METAL	100K	1%	1/6W	
R122	1-215-479-00	METAL	270K	1%	1/6W	
R123	1-215-469-00	METAL	100K	1%	1/6W	
R124	1-215-427-00	METAL	1.8K	1%	1/6W	
R125	1-215-467-00	METAL	82K	1%	1/6W	
R126	1-215-443-00	METAL	8.2K	1%	1/6W	
R127	1-215-469-00	METAL	100K	1%	1/6W	
R128	1-215-469-00	METAL	100K	1%	1/6W	
R129	1-215-451-00	METAL	18K	1%	1/6W	
R130	1-215-461-00	METAL	47K	1%	1/6W	
R131	1-249-417-11	CARBON	1K	5%	1/6W	
R132	1-215-459-00	METAL	39K	1%	1/6W	
R134	1-215-449-00	METAL	15K	1%	1/6W	
R135	1-215-465-00	METAL	68K	1%	1/6W	
R136	1-215-453-00	METAL	22K	1%	1/6W	
R137	1-215-473-00	METAL	150K	1%	1/6W	
R138	1-215-465-00	METAL	68K	1%	1/6W	
R139	1-215-477-00	METAL	220K	1%	1/6W	
R140	1-215-469-00	METAL	100K	1%	1/6W	
R141	1-215-473-00	METAL	150K	1%	1/6W	
R142	1-215-469-00	METAL	100K	1%	1/6W	
R143	1-215-469-00	METAL	100K	1%	1/6W	
R144	1-215-469-00	METAL	100K	1%	1/6W	
R145	1-215-469-00	METAL	100K	1%	1/6W	
R146	1-215-455-00	METAL	27K	1%	1/6W	
R147	1-215-461-00	METAL	47K	1%	1/6W	
R148	1-215-463-00	METAL	56K	1%	1/6W	
R149	1-215-449-00	METAL	15K	1%	1/6W	
R150	1-215-457-00	METAL	33K	1%	1/6W	
R151	1-215-461-00	METAL	47K	1%	1/6W	
R152	1-215-461-00	METAL	47K	1%	1/6W	
R153	1-215-461-00	METAL	47K	1%	1/6W	
R154	1-215-461-00	METAL	47K	1%	1/6W	
R155	1-215-473-00	METAL	150K	1%	1/6W	
R156	1-215-465-00	METAL	68K	1%	1/6W	
R157	1-215-477-00	METAL	220K	1%	1/6W	

Ref.No.	Part No.	Description				Remark
R158	1-215-469-00	METAL	100K	1%	1/6W	
R159	1-215-473-00	METAL	150K	1%	1/6W	
R160	1-215-469-00	METAL	100K	1%	1/6W	
R161	1-215-469-00	METAL	100K	1%	1/6W	
R162	1-215-469-00	METAL	100K	1%	1/6W	
R163	1-215-469-00	METAL	100K	1%	1/6W	
R164	1-215-455-00	METAL	27K	1%	1/6W	
R165	1-215-461-00	METAL	47K	1%	1/6W	
R166	1-215-463-00	METAL	56K	1%	1/6W	
R167	1-215-449-00	METAL	15K	1%	1/6W	
R168	1-215-457-00	METAL	33K	1%	1/6W	
R169	1-215-461-00	METAL	47K	1%	1/6W	
R170	1-215-461-00	METAL	47K	1%	1/6W	
R171	1-215-461-00	METAL	47K	1%	1/6W	
R172	1-215-461-00	METAL	47K	1%	1/6W	
R173	1-215-441-00	METAL	6.8K	1%	1/6W	
R174	1-215-425-00	METAL	1.5K	1%	1/6W	
R175	1-215-425-00	METAL	1.5K	1%	1/6W	
R176	1-215-425-00	METAL	1.5K	1%	1/6W	
R177	1-215-441-00	METAL	6.8K	1%	1/6W	
R178	1-215-453-00	METAL	22K	1%	1/6W	
R179	1-215-461-00	METAL	47K	1%	1/6W	
R180	1-249-429-11	CARBON	10K	5%	1/6W	
R181	1-249-405-11	CARBON	100	5%	1/6W	
R182	1-249-405-11	CARBON	100	5%	1/6W	
R183	1-215-445-00	METAL	10K	1%	1/6W	
R184	1-215-417-00	METAL	680	1%	1/6W	
R185	1-249-393-11	CARBON	10	5%	1/6W	
R186	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R187	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R188	1-215-397-00	METAL	100	1%	1/6W	
R189	1-215-375-00	METAL	12	1%	1/6W	
R190	1-215-375-00	METAL	12	1%	1/6W	
R191	1-215-375-00	METAL	12	1%	1/6W	
R192	1-215-375-00	METAL	12	1%	1/6W	
R193	1-215-375-00	METAL	12	1%	1/6W	
R194	1-215-441-00	METAL	6.8K	1%	1/6W	
R195	1-249-429-11	CARBON	10K	5%	1/6W	
R196	1-215-441-00	METAL	6.8K	1%	1/6W	
R197	1-249-429-11	CARBON	10K	5%	1/6W	
R198	1-249-405-11	CARBON	100	5%	1/6W	
R199	1-249-405-11	CARBON	100	5%	1/6W	
R200	1-215-445-00	METAL	10K	1%	1/6W	
R201	1-215-417-00	METAL	680	1%	1/6W	
R202	1-249-393-11	CARBON	10	5%	1/6W	
R203	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R204	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R205	1-215-391-00	METAL	56	1%	1/6W	
R206	1-215-375-00	METAL	12	1%	1/6W	
R207	1-215-375-00	METAL	12	1%	1/6W	
R208	1-215-375-00	METAL	12	1%	1/6W	
R209	1-215-375-00	METAL	12	1%	1/6W	
R210	1-215-375-00	METAL	12	1%	1/6W	

Ref.No.	Part No.	Description				Remark
R211	1-215-445-00	METAL	10K	1%	1/6W	
R212	1-215-417-00	METAL	680	1%	1/6W	
R213	1-249-393-11	CARBON	10	5%	1/6W	
R214	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R215	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R217	1-215-374-00	METAL	11	1%	1/6W	
R218	1-215-375-00	METAL	12	1%	1/6W	
R219	1-215-375-00	METAL	12	1%	1/6W	
R220	1-215-375-00	METAL	12	1%	1/6W	
R221	1-215-375-00	METAL	12	1%	1/6W	
R222	1-215-419-00	METAL	820	1%	1/6W	
R223	1-215-447-00	METAL	12K	1%	1/6W	
R224	1-214-802-00	METAL	2.7	1%	1/2W	
R225	1-214-804-11	METAL	3.3	1%	1/2W	
R226	1-214-802-00	METAL	2.7	1%	1/2W	
R227	1-214-804-11	METAL	3.3	1%	1/2W	
R228	1-214-802-00	METAL	2.7	1%	1/2W	
R229	1-214-804-11	METAL	3.3	1%	1/2W	
R230	1-215-469-00	METAL	100K	1%	1/6W	
R231	1-215-469-00	METAL	100K	1%	1/6W	
R232	1-249-429-11	CARBON	10K	5%	1/6W	
R233	1-247-901-00	CARBON	820K	5%	1/6W	
R234	1-247-901-00	CARBON	820K	5%	1/6W	
R235	1-247-897-00	CARBON	560K	5%	1/6W	
R236	1-247-897-00	CARBON	560K	5%	1/6W	
R237	1-249-441-11	CARBON	100K	5%	1/6W	
R238	1-249-433-11	CARBON	22K	5%	1/6W	
R239	1-249-433-11	CARBON	22K	5%	1/6W	
R240	1-249-440-11	CARBON	82K	5%	1/6W	
R241	1-215-483-00	METAL	390K	1%	1/6W	
R242	1-215-473-00	METAL	150K	1%	1/6W	
R243	1-215-457-00	METAL	33K	1%	1/6W	
R244	1-215-457-00	METAL	33K	1%	1/6W	
R245	1-215-465-00	METAL	68K	1%	1/6W	
R246	1-215-453-00	METAL	22K	1%	1/6W	
R247	1-215-457-00	METAL	33K	1%	1/6W	
R248	1-215-469-00	METAL	100K	1%	1/6W	
R249	1-249-416-11	CARBON	820	5%	1/6W	
R250	1-249-417-11	CARBON	1K	5%	1/6W	
R251	1-249-405-11	CARBON	100	5%	1/6W	
R252	1-215-463-00	METAL	56K	1%	1/6W	
R253	1-215-461-00	METAL	47K	1%	1/6W	
R254	1-249-413-11	CARBON	470	5%	1/6W	
R255	1-249-429-11	CARBON	10K	5%	1/6W	
R256	1-249-423-11	CARBON	3.3K	5%	1/6W	
R257	1-249-423-11	CARBON	3.3K	5%	1/6W	
R258	1-249-433-11	CARBON	22K	5%	1/6W	
R259	1-249-429-11	CARBON	10K	5%	1/6W	
R260	1-249-433-11	CARBON	22K	5%	1/6W	
R261	1-249-433-11	CARBON	22K	5%	1/6W	
R262	1-249-441-11	CARBON	100K	5%	1/6W	
R263	1-215-910-00	METAL OXIDE	68	5%	3W	F
R264	1-215-910-00	METAL OXIDE	68	5%	3W	F

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Ref.No.	Part No.	Description				Remark
R265	1-215-910-00	METAL OXIDE	68	5%	3W	F
R266	1-215-910-00	METAL OXIDE	68	5%	3W	F
R401	1-249-423-11	CARBON	3.3K	5%	1/6W	
R402	1-249-417-11	CARBON	1K	5%	1/6W	
R403	1-249-417-11	CARBON	1K	5%	1/6W	
R404	1-249-417-11	CARBON	1K	5%	1/6W	
R405	1-249-417-11	CARBON	1K	5%	1/6W	
R406	1-249-417-11	CARBON	1K	5%	1/6W	
R407	1-249-417-11	CARBON	1K	5%	1/6W	
R408	1-249-417-11	CARBON	1K	5%	1/6W	
R409	1-249-417-11	CARBON	1K	5%	1/6W	
R410	1-249-417-11	CARBON	1K	5%	1/6W	
R411	1-249-417-11	CARBON	1K	5%	1/6W	
R412	1-249-405-11	CARBON	100	5%	1/6W	
R413	1-249-417-11	CARBON	1K	5%	1/6W	
R414	1-249-405-11	CARBON	100	5%	1/6W	
R415	1-249-417-11	CARBON	1K	5%	1/6W	
R416	1-249-405-11	CARBON	100	5%	1/6W	
R417	1-249-417-11	CARBON	1K	5%	1/6W	
R418	1-249-405-11	CARBON	100	5%	1/6W	
R419	1-249-405-11	CARBON	100	5%	1/6W	
R420	1-249-405-11	CARBON	100	5%	1/6W	
R421	1-249-417-11	CARBON	1K	5%	1/6W	
R422	1-249-417-11	CARBON	1K	5%	1/6W	
R423	1-249-417-11	CARBON	1K	5%	1/6W	
R424	1-249-417-11	CARBON	1K	5%	1/6W	
R425	1-249-417-11	CARBON	1K	5%	1/6W	
R426	1-249-417-11	CARBON	1K	5%	1/6W	
R427	1-249-417-11	CARBON	1K	5%	1/6W	
R428	1-249-417-11	CARBON	1K	5%	1/6W	
R429	1-249-417-11	CARBON	1K	5%	1/6W	
R430	1-249-435-11	CARBON	33K	5%	1/6W	
R431	1-215-471-00	METAL	120K	1%	1/6W	
R432	1-215-455-00	METAL	27K	1%	1/6W	
R433	1-215-477-00	METAL	220K	1%	1/6W	
R434	1-215-475-00	METAL	180K	1%	1/6W	
R435	1-215-455-00	METAL	27K	1%	1/6W	
R436	1-215-468-00	METAL	91K	1%	1/6W	
R437	1-215-471-00	METAL	120K	1%	1/6W	
R438	1-215-452-00	METAL	20K	1%	1/6W	
R439	1-215-465-00	METAL	68K	1%	1/6W	

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV1	1-224-251-XX	RES, ADJ, METAL GLAZE 4.7K	
RV2	1-224-251-XX	RES, ADJ, METAL GLAZE 4.7K	
RV3	1-230-633-41	RES, ADJ, CARBON 47K	
RV4	1-230-633-41	RES, ADJ, CARBON 47K	
RV5	1-230-630-11	RES, ADJ, CARBON 10K	
RV6	1-230-630-11	RES, ADJ, CARBON 10K	
RV7	1-230-630-11	RES, ADJ, CARBON 10K	
RV8	1-230-630-11	RES, ADJ, CARBON 10K	
RV9	1-230-630-11	RES, ADJ, CARBON 10K	
RV10	1-230-630-11	RES, ADJ, CARBON 10K	
RV11	1-230-630-11	RES, ADJ, CARBON 10K	
RV12	1-230-630-11	RES, ADJ, CARBON 10K	
RV13	1-230-630-11	RES, ADJ, CARBON 10K	
RV14	1-230-630-11	RES, ADJ, CARBON 10K	
RV15	1-230-630-11	RES, ADJ, CARBON 10K	
RV16	1-230-630-11	RES, ADJ, CARBON 10K	
RV17	1-230-630-11	RES, ADJ, CARBON 10K	
RV18	1-230-630-11	RES, ADJ, CARBON 10K	
RV19	1-230-630-11	RES, ADJ, CARBON 10K	
RV20	1-230-630-11	RES, ADJ, CARBON 10K	
RV21	1-230-630-11	RES, ADJ, CARBON 10K	
RV22	1-230-630-11	RES, ADJ, CARBON 10K	
RV23	1-230-630-11	RES, ADJ, CARBON 10K	
RV24	1-230-630-11	RES, ADJ, CARBON 10K	
RV25	1-230-630-11	RES, ADJ, CARBON 10K	
RV26	1-230-630-11	RES, ADJ, CARBON 10K	
RV27	1-230-630-11	RES, ADJ, CARBON 10K	
RV28	1-230-630-11	RES, ADJ, CARBON 10K	
RV29	1-230-630-11	RES, ADJ, CARBON 10K	
RV30	1-230-630-11	RES, ADJ, CARBON 10K	
RV31	1-230-630-11	RES, ADJ, CARBON 10K	
RV32	1-230-630-11	RES, ADJ, CARBON 10K	
RV33	1-230-630-11	RES, ADJ, CARBON 10K	
RV34	1-230-630-11	RES, ADJ, CARBON 10K	
RV35	1-230-630-11	RES, ADJ, CARBON 10K	
RV36	1-230-630-11	RES, ADJ, CARBON 10K	
RV37	1-230-630-11	RES, ADJ, CARBON 10K	
RV38	1-230-630-11	RES, ADJ, CARBON 10K	
RV39	1-230-630-11	RES, ADJ, CARBON 10K	
RV40	1-230-630-11	RES, ADJ, CARBON 10K	
RV41	1-230-630-11	RES, ADJ, CARBON 10K	
RV42	1-230-630-11	RES, ADJ, CARBON 10K	
RV43	1-230-630-11	RES, ADJ, CARBON 10K	
RV44	1-230-630-11	RES, ADJ, CARBON 10K	
RV45	1-230-630-11	RES, ADJ, CARBON 10K	
RV46	1-230-630-11	RES, ADJ, CARBON 10K	
RV47	1-230-630-11	RES, ADJ, CARBON 10K	
RV48	1-230-630-11	RES, ADJ, CARBON 10K	
RV49	1-230-630-11	RES, ADJ, CARBON 10K	
RV50	1-230-630-11	RES, ADJ, CARBON 10K	
RV51	1-230-630-11	RES, ADJ, CARBON 10K	
RV401	1-228-938-00	RES, VAR, CARBON 20K	
RV402	1-228-938-00	RES, VAR, CARBON 20K	
RV403	1-228-937-00	RES, VAR, CARBON 20K	
RV404	1-228-937-00	RES, VAR, CARBON 20K	
RV405	1-228-937-00	RES, VAR, CARBON 20K	
RV406	1-228-938-00	RES, VAR, CARBON 20K	

SWITCH

Ref.No.	Part No.	Description	Remark
S1	1-553-755-00	SWITCH, SLIDE	
S2	1-553-755-00	SWITCH, SLIDE	
S3	1-553-755-00	SWITCH, SLIDE	
S4	1-553-755-00	SWITCH, SLIDE	

Ref.No.	Part No.	Description	Remark
S5	1-553-755-00	SWITCH, SLIDE	
S6	1-553-755-00	SWITCH, SLIDE	
S7	1-553-755-00	SWITCH, SLIDE	
S8	1-553-716-00	SWITCH, SLIDE	
S9	1-553-716-00	SWITCH, SLIDE	
S10	1-553-716-00	SWITCH, SLIDE	
S11	1-553-716-00	SWITCH, SLIDE	
S12	1-553-716-00	SWITCH, SLIDE	
S13	1-552-437-00	SWITCH, LEVER	
S401	1-552-737-00	SWITCH, PUSH	
S402	1-554-499-00	SWITCH, PUSH (2 KEY)	
S403	1-516-970-00	SWITCH, SLIDE	

* * *

*1-621-059-11 DB BOARD

CAPACITOR

C1	1-161-265-00	CERAMIC	33PF	5%	50V
C2	1-161-265-00	CERAMIC	33PF	5%	50V
C3	1-161-319-00	CERAMIC	470PF	10%	50V
C4	1-161-319-00	CERAMIC	470PF	10%	50V

IC

IC1	8-759-106-41	IC UPC4570C

TRANSISTOR

Q1	8-729-205-96	TRANSISTOR 2SC3668
Q2	8-729-205-95	TRANSISTOR 2SA1428-Y
Q3	8-729-205-96	TRANSISTOR 2SC3668
Q4	8-729-205-95	TRANSISTOR 2SA1428-Y

RESISTOR

R1	1-215-453-00	METAL	22K	1%	1/6W
R2	1-215-453-00	METAL	22K	1%	1/6W
R3	1-249-411-11	CARBON	330	5%	1/6W
R4	1-249-411-11	CARBON	330	5%	1/6W
R5	1-247-705-11	CARBON	270	5%	1/4W
R6	1-247-705-11	CARBON	270	5%	1/4W

CONNECTOR

W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P

* * *

*1-621-053-11 DY BOARD

CAPACITOR

C901	1-102-327-00	CERAMIC	330PF	15%	1.5KV
C902	1-102-327-00	CERAMIC	330PF	15%	1.5KV

Ref.No.	Part No.	Description	Remark

CONNECTOR

DY1	*1-566-041-11	PIN, CONNECTOR 2P
DY2	*1-566-041-11	PIN, CONNECTOR 2P

RESISTOR

R901	1-202-822-00	SOLID	2.2K	1/2W
R902	1-202-822-00	SOLID	2.2K	1/2W

SPARK GAP

SG901	1-519-063-XX	DISCHARGING GAP
SG902	1-519-063-XX	DISCHARGING GAP

* * *

*A-1340-922-A E BOARD, COMPLETE

4-383-022-01 SPACER, MICA

CAPACITOR

C1	1-123-933-00	ELECT	10MF	20%	160V
C2	1-123-379-00	ELECT	0.47MF	20%	50V
C3	1-102-106-00	CERAMIC	100PF	10%	50V
C4	1-102-030-00	CERAMIC	330PF	10%	500V
C5	1-106-383-00	MYLAR	0.047MF	10%	200V
C6	1-102-030-00	CERAMIC	330PF	10%	500V
C7	1-106-383-00	MYLAR	0.047MF	10%	200V
C8	1-123-024-00	ELECT	33MF		160V
C9	1-136-113-00	FILM	2MF	5%	200V
C10	1-136-113-00	FILM	2MF	5%	200V
C11	1-130-706-00	FILM	0.008MF	3%	1.6KV
C12	1-124-662-11	ELECT	220MF	20%	50V
C13	1-124-662-11	ELECT	220MF	20%	50V
C14	1-124-662-11	ELECT	220MF	20%	50V
C15	1-101-004-00	CERAMIC	0.01MF		50V
C16	1-123-380-00	ELECT	1MF	20%	50V
C17	1-123-356-00	ELECT	10MF	20%	25V
C18	1-124-236-00	ELECT	47MF	20%	16V
C19	1-108-692-81	MYLAR	0.01MF	10%	200V
C20	1-136-153-00	FILM	0.01MF	5%	50V
C21	1-136-153-00	FILM	0.01MF	5%	50V
C24	1-101-006-00	CERAMIC	0.047MF		50V
C25	1-123-333-00	ELECT	100MF	20%	16V
C26	1-123-333-00	ELECT	100MF	20%	16V
C27	1-101-006-00	CERAMIC	0.047MF		50V
C28	1-101-006-00	CERAMIC	0.047MF		50V
C29	1-123-356-00	ELECT	10MF	20%	16V
C30	1-123-356-00	ELECT	10MF	20%	16V
C31	1-101-006-00	CERAMIC	0.047MF		50V
C32	1-123-356-00	ELECT	10MF	20%	25V
C33	1-123-333-00	ELECT	100MF	20%	16V
C34	1-106-387-00	MYLAR	0.1MF	10%	200V
C35	1-102-125-00	CERAMIC	0.0047MF	10%	50V

E **EB**

DIODE

Ref.No.	Part No.	Description	Remark
D1	8-719-300-80	DIODE RU-1C	
D2	8-719-300-80	DIODE RU-1C	
D3	8-719-918-77	DIODE V19G	
D4	8-719-918-77	DIODE V19G	
D6	8-719-109-98	DIODE RD6.8ES-B3	
D7	8-719-110-09	DIODE RD8.2ES-B3	
D8	8-719-911-19	DIODE 1SS119	
D9	8-719-109-98	DIODE RD6.8ES-B3	
D10	8-719-911-19	DIODE 1SS119	

CONNECTOR

Ref.No.	Part No.	Description	Remark
E1	*1-506-371-00	2P PLUG (L)	
E2	*1-506-371-00	2P PLUG (L)	
E3	*1-506-371-00	2P PLUG (L)	
E4	*1-508-786-00	2P PLUG (M)	
E5	*1-566-060-11	PIN, CONNECTOR 8P	
E6	*1-566-055-11	PIN, CONNECTOR 3P	
E7	*1-566-062-11	PIN, CONNECTOR 10P	
E8	*1-566-060-11	PIN, CONNECTOR 8P	
E9	*1-566-055-11	PIN, CONNECTOR 3P	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-178-12	IC UPC78L12	
IC2	8-759-145-58	IC UPC4558C	
IC3	8-759-700-24	IC NJM79M12A	

COIL

Ref.No.	Part No.	Description	Remark
L1	1-459-155-00	COIL (WITH CORE) 45UH	
L2	1-459-155-00	COIL (WITH CORE) 45UH	
L3	1-459-109-00	COIL, DUST CORE	
L4	1-459-109-00	COIL, DUST CORE	
L5	1-459-241-00	COIL, HORIZONTAL LINIALITY	
L6	1-459-348-00	COIL, VAR, FERRITE (HWC)	
L7	1-459-348-00	COIL, VAR, FERRITE (HWC)	
L8	1-459-348-00	COIL, VAR, FERRITE (HWC)	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q1	8-729-800-80	TRANSISTOR 2SD1399-CA	
Q2	8-729-902-00	TRANSISTOR 2SC3163	
Q3	8-729-168-82	TRANSISTOR 2SC2688	
Q4	8-729-168-82	TRANSISTOR 2SC2688	
Q5	8-729-114-22	TRANSISTOR 2SA1142	
Q6	8-729-178-54	TRANSISTOR 2SC2785	
Q7	8-729-900-85	TRANSISTOR DTC144WS	
Q9	8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No.	Part No.	Description				Remark
R1	1-249-417-11	CARBON	1K	5%	1/6W	
R2	1-216-395-00	WIREWOUND	3.3	10%	2W	F
R3	1-249-417-11	CARBON	1K	5%	1/6W	F
R4	1-249-469-11	CARBON	100K	5%	1/4W	
R5	1-249-423-11	CARBON	3.3K	5%	1/6W	
R6	1-249-429-11	CARBON	10K	5%	1/6W	F
R7	1-215-921-11	METAL OXIDE	4.7K	5%	3W	F
R8	1-249-429-11	CARBON	10K	5%	1/6W	F
R9	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R10	1-215-880-00	METAL OXIDE	10	5%	2W	F
R11	1-215-879-51	METAL OXIDE	47K	5%	1W	F
R12	1-216-379-11	METAL OXIDE	6.8	5%	2W	F
R13	1-215-868-00	METAL OXIDE	680	5%	1W	F
R14	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R15	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R16	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R17	1-249-385-11	CARBON	2.2	5%	1/6W	F
R18	1-249-385-11	CARBON	2.2	5%	1/6W	F
R19	1-249-385-11	CARBON	2.2	5%	1/6W	F
R20	1-249-405-11	CARBON	100	5%	1/6W	
R21	1-249-423-11	CARBON	3.3K	5%	1/6W	
R22	1-249-440-11	CARBON	82K	5%	1/6W	
R25	1-215-471-00	METAL	120K	1%	1/6W	
R26	1-215-443-00	METAL	8.2K	1%	1/6W	
R27	1-215-455-00	METAL	27K	1%	1/6W	
R28	1-215-475-00	METAL	180K	1%	1/6W	
R29	1-215-475-00	METAL	180K	1%	1/6W	
R30	1-215-455-00	METAL	27K	1%	1/6W	
R31	1-247-893-00	CARBON	390K	5%	1/6W	
R32	1-249-417-11	CARBON	1K	5%	1/6W	
R33	1-247-895-00	CARBON	470K	5%	1/6W	
R34	1-215-485-00	METAL	470K	1%	1/6W	
R41	1-215-863-11	METAL OXIDE	100	5%	1W	F
R42	1-249-435-11	CARBON	33K	5%	1/6W	
R43	1-215-477-00	METAL	220K	1%	1/6W	
R44	1-249-413-11	CARBON	470	5%	1/6W	
R45	1-247-725-11	CARBON	10K	5%	1/4W	
R46	1-249-421-11	CARBON	2.2K	5%	1/6W	
R47	1-249-429-11	CARBON	10K	5%	1/6W	

TRANSFORMER

Ref.No.	Part No.	Description	Remark
T1	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE	
T2	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE	
T3	1-439-320-00	TRANSFORMER, FERRITE (HOT)	

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*1-621-055-11 EB BOARD
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CAPACITOR

Ref.No.	Part No.	Description				Remark
C1	1-124-245-00	ELECT	4.7MF	20%	25V	
C2	1-124-245-00	ELECT	4.7MF	20%	25V	
C3	1-136-159-00	FILM	0.033MF	5%	50V	
C5	1-102-106-00	CERAMIC	100PF	10%	50V	
C6	1-130-475-00	MYLAR	0.0022MF	5%	50V	
C7	1-123-617-00	ELECT	10MF	20%	16V	
C8	1-136-165-00	FILM	0.1MF	5%	50V	

EB **EC** **HA** **X** **Y**

Ref.No.	Part No.	Description				Remark
		DIODE				
D1	8-719-911-19	DIODE 1SS119				
		IC				
IC1	8-759-100-75	IC UPC1394C				
		RESISTOR				
R1	1-215-441-00	METAL	6.8K	1%	1/6W	
R2	1-249-417-11	CARBON	1K	5%	1/6W	
R3	1-249-431-11	CARBON	15K	5%	1/6W	
R4	1-249-427-11	CARBON	6.8K	5%	1/6W	
R5	1-249-441-11	CARBON	100K	5%	1/6W	
R6	1-249-423-11	CARBON	3.3K	5%	1/6W	
R7	1-249-429-11	CARBON	10K	5%	1/6W	
R8	1-249-413-11	CARBON	470	5%	1/6W	
R9	1-249-428-11	CARBON	8.2K	5%	1/6W	
R10	1-249-437-11	CARBON	47K	5%	1/6W	
R11	1-247-895-00	CARBON	470K	5%	1/6W	
R12	1-249-435-11	CARBON	33K	5%	1/6W	
R13	1-215-441-00	METAL	6.8K	1%	1/6W	
R14	1-215-441-00	METAL	6.8K	1%	1/6W	
		CONNECTOR				
W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P				
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P				

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Ref.No.	Part No.	Description				Remark
	*1-621-060-11	EC BOARD ********				
		CAPACITOR				
C1	1-161-330-00	CERAMIC	0.01MF	30%	25V	
C2	1-161-319-00	CERAMIC	470PF	10%	50V	
C3	1-161-319-00	CERAMIC	470PF	10%	50V	
		IC				
IC1	8-759-145-58	IC UPC4558C				
		TRANSISTOR				
Q1	8-729-205-96	TRANSISTOR 2SC3668				
Q2	8-729-205-95	TRANSISTOR 2SA1428-Y				
		RESISTOR				
R1	1-215-423-00	METAL	1.2K	1%	1/6W	
R2	1-249-417-11	CARBON	1K	5%	1/6W	
R3	1-215-445-00	METAL	10K	1%	1/6W	
R4	1-215-445-00	METAL	10K	1%	1/6W	
R5	1-215-445-00	METAL	10K	1%	1/6W	
R6	1-215-445-00	METAL	10K	1%	1/6W	
R7	1-215-375-00	METAL	12	1%	1/6W	
R8	1-215-375-00	METAL	12	1%	1/6W	
R9	1-215-375-00	METAL	12	1%	1/6W	
		CONNECTOR				
W3	*1-506-603-11	PLUG, L TYPE (2.0MM PITCH) 10P				

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Ref.No.	Part No.	Description				Remark
	*1-621-062-11	HA BOARD ********				
		CONNECTOR				
HA1	*1-566-045-11	PIN, CONNECTOR 6P				
HA2	*1-566-042-11	PIN, CONNECTOR 3P				
HA3	*1-566-041-11	PIN, CONNECTOR 2P				
HA4	*1-566-042-11	PIN, CONNECTOR 3P				
HA5	*1-566-041-11	PIN, CONNECTOR 2P				
		RESISTOR				
R451	1-247-874-00	CARBON	62K	5%	1/6W	
		VARIABLE RESISTOR				
RV451	1-228-936-00	RES, VAR, CARBON 10K				
RV452	1-228-936-00	RES, VAR, CARBON 10K				
RV453	1-228-936-00	RES, VAR, CARBON 10K				
RV454	1-228-936-00	RES, VAR, CARBON 10K				
RV455	1-228-936-00	RES, VAR, CARBON 10K				
RV456	1-228-937-00	RES, VAR, CARBON 20K				
		SWITCH				
S451	1-516-970-00	SWITCH, SLIDE				
S452	1-514-633-00	SLIDE SWITCH				

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Ref.No.	Part No.	Description				Remark
	*1-621-051-11	X BOARD *******				
		TERMINAL				
PL1	*1-535-615-11	TERMINAL (LAMP SOCKET)				
		CONNECTOR				
X1	*1-566-041-11	PIN, CONNECTOR 2P				
X2	*1-566-041-11	PIN, CONNECTOR 2P				

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Ref.No.	Part No.	Description				Remark
	*1-621-052-11	Y BOARD *******				
	*4-365-850-00	HOLDER, LED				
		DIODE				
D1	8-719-909-20	DIODE GL-9NG2				

Y GA GB

Ref.No.	Part No.	Description	Remark
		CONNECTOR	
Y1	*1-566-041-11	PIN, CONNECTOR 2P	

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Ref.No.	Part No.	Description	Remark
	⚠1-413-289-11	GA BOARD ********	
	*2-430-205-00	COVER, U-14	
	*2-430-297-01	SHEET (TK-03), INSULATING	
	2-430-308-01	INSULATOR (TK-03), TR	
	2-430-318-01	SD-TK03	
	*2-430-742-00	BRACKET-RIGHT (SR-12), L	
	*2-430-743-01	BRACKET-LEFT (SR-12)	
	*2-430-746-01	DP-SR12	
	2-430-773-01	+PSW 3X6	
	2-431-616-01	RUBBER (ST-TK15), RADIATION	
	2-434-060-01	+PSW 3X18	
		CAPACITOR	
C601	⚠1-125-341-11	ELECT 47MF 20% 400V	
C602	⚠1-124-024-51	ELECT 4.7MF 20% 350V	
C603	⚠1-124-024-51	ELECT 4.7MF 20% 350V	
C604	⚠1-161-742-51	CERAMIC 2200PF 20% 400V	
C605	⚠1-161-742-51	CERAMIC 2200PF 20% 400V	
C606	⚠1-161-742-51	CERAMIC 2200PF 20% 400V	
C651	⚠1-161-963-11	CERAMIC 100PF 20% 2KV	
C652	⚠1-123-575-51	ELECT 100MF 160V	
C653	⚠1-123-575-51	ELECT 100MF 160V	
C654	⚠1-123-935-51	ELECT 33MF 20% 160V	
C655	⚠1-161-912-11	CERAMIC 560PF 10% 500V	
C656	⚠1-161-912-11	CERAMIC 560PF 10% 500V	
C657	⚠1-161-912-11	CERAMIC 560PF 10% 500V	
~~C658~~	~~⚠1-161-912-11~~	~~CERAMIC 560PF 10% 500V~~	
C659	⚠1-124-636-51	ELECT 3300MF 20% 25V	
C660	⚠1-124-120-51	ELECT 220MF 20% 25V	
C661	⚠1-124-636-51	ELECT 3300MF 20% 25V	
C662	⚠1-124-120-51	ELECT 220MF 20% 25V	
C663	⚠1-130-768-21	FILM 0.1MF 10% 63V	
C664	⚠1-130-768-21	FILM 0.1MF 10% 63V	
		DIODE	
D651	⚠8-719-300-53	DIODE CTU-38S	
D652	⚠8-719-300-52	DIODE CTU-38R	
D653	⚠8-719-908-00	DIODE ESAC33-02CS	
~~D654~~	~~⚠8-719-901-90~~	~~DIODE ESAC33-02N~~	
D655	⚠8-719-200-01	DIODE 10E1	
D656	⚠8-719-200-01	DIODE 10E1 ******	
		COIL	
L601	⚠1-421-606-11	TRANSFORMER, LINE FILTER	
L651	⚠A-4935-022-A	COIL, CHOKE	
L652	⚠1-410-244-11	COIL, CHOKE 300UH	
L653	⚠1-408-933-11	COIL, CHOKE	
L654	⚠1-408-933-11	COIL, CHOKE	
L655	⚠1-408-933-11	COIL, CHOKE	

Ref.No.	Part No.	Description	Remark
		TRANSISTOR	
Q601	⚠8-729-301-77	TRANSISTOR STR8124-0	
		RESISTOR	
R601	⚠1-246-429-25	CARBON 15 5% 1/4W	
R602	⚠1-246-429-25	CARBON 15 5% 1/4W	
R651	⚠0-906-252-01	CEMENTED 10 5W	
R652	⚠1-246-457-25	CARBON 220 5% 1/4W	
R653	⚠1-214-745-51	METAL 4.7K 1% 1/4W	
R654	⚠1-214-745-51	METAL 4.7K 1% 1/4W	
R655	⚠1-246-417-25	CARBON 4.7 5% 1/4W	
		TRANSFORMER	
T601	⚠1-421-460-31	TRANSFORMER, CURRENT	
T602	⚠A-4935-007-A	TRANSFORMER, CONVERTER	
T603	⚠1-447-106-11	TRANSFORMER, DRIVE	

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Ref.No.	Part No.	Description	Remark
	⚠1-620-978-11	GB BOARD ********	
		CAPACITOR	
C671	⚠1-131-455-51	TANTALUM 0.47MF 20% 16V	
C672	⚠1-131-455-51	TANTALUM 0.47MF 20% 16V	
C673	⚠1-124-478-51	ELECT 100MF 20% 25V	
C674	⚠1-130-027-51	FILM 5600PF 5% 50V	
~~C675~~	~~⚠1-130-512-51~~	~~FILM 4700PF 10% 50V~~	
C676	⚠1-130-768-21	FILM 0.1MF 10% 63V	
C677	⚠1-124-908-51	ELECT 22MF 20% 50V	
		CONNECTOR	
CN671	⚠*1-564-165-11	PIN, CONNECTOR 8P	
		DIODE	
D671	⚠8-719-923-76	DIODE 1S2076A	
D672	⚠8-719-923-76	DIODE 1S2076A	
D673	⚠8-719-923-76	DIODE 1S2076A	
D674	⚠8-719-109-85	DIODE RD5.1ES-B2	
		IC	
IC671	⚠8-759-906-62	IC MB3759-SNY	
		TRANSISTOR	
Q671	⚠8-729-177-42	TRANSISTOR 2SD774-3	
Q672	⚠8-729-177-42	TRANSISTOR 2SD774-3	
Q673	⚠8-729-178-52	TRANSISTOR 2SC2785-J	
Q674	⚠8-729-178-52	TRANSISTOR 2SC2785-J	
Q675	⚠8-729-117-52	TRANSISTOR 2SA1175-J	
Q676	⚠8-729-117-52	TRANSISTOR 2SA1175-J	
Q677	⚠8-729-117-52	TRANSISTOR 2SA1175-J	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

VPH-1040QM

SONY®
SERVICE MANUAL

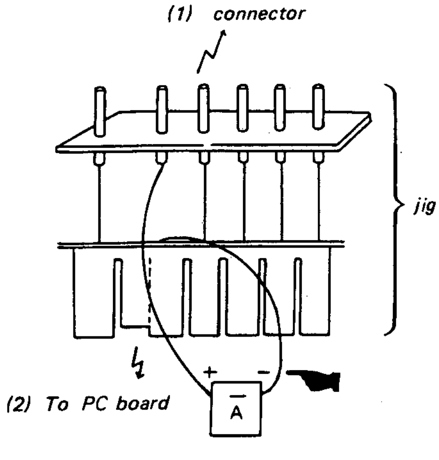
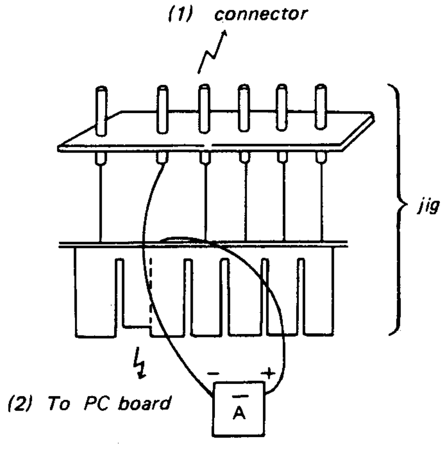
AEP Model
Chassis No. SCC-A65A-A
No. 1

CORRECTION

Correct the service manual as shown below.
File this correction with the service manual.

☛ : corrected portion and added portion

SECTION 5. SAFETY RELATED ADJUSTMENT: PAGE 39

Correct	Incorrect
⊠ R23 BEAM CURRENT PROTECTOR ADJUSTMENT *1. Confirm that the power switch is in OFF position.* *2. Disconnect RED anode-lead-wire from HV-DC Block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.* *3. Install the tool to the PC-1 connector on the PC board and connect an ammeter.* *4. Short-circuit between emitter to collector of Q12 on PA-board.* ☛ *5. Turn PICTURE, BRIGHT and R.G.B. G2 VRs (Focus Pack), and then confirm that protector circuit operates and raster disappears when ABL current is less than 3500 µA.* ☛ *6. Remove the short-circuit between emitter to collector of Q12 on PA-board and instead short-circuit between emitter to collector of Q11 and make the adjustment of 5.* ☛ *7. Remove the short-circuit between emitter to collector of Q11 on PA-board.* ☛  *Fig. 2*	*⊠ R23 BEAM CURRENT PROTECTOR ADJUSTMENT* *1. Confirm that the power switch is in OFF position.* *2. Disconnect RED anode-lead-wire from HV-DC Block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.* *3. Install the tool to the PC-1 connector on the PC board and connect an ammeter.* *4. Turn PICTURE, BRIGHT and R.G.B. G2 VRs (Focus Pack), and then confirm that protector circuit operates and raster disappears when ABL current is less than 3500 µA.*  *Fig. 2*

— Continued on next page —

The section with the SAFETY RELATED ADJUSTMENT.

5-2. When not using a high-voltage meter (for H. Pulse measurement)

■ *HV HODD-DOWN CIRCUIT ADJUSTMENT (R38 AND R39)*

1. *Calibrate the detected voltage with a voltage dividing network as shown in Fig. 1.*
   Connect V1 to the 115V line of the unit and read voltage at this point with a digital voltmeter. Then, connect the voltmeter as shown in Fig. 1 and adjust the voltmeter reading to 1/10 of the V1 reading with the variable resistor (VR).

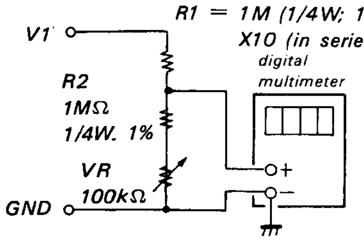
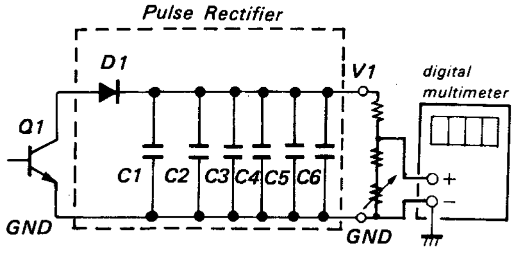


Fig. 1: Voltage dividing network

2. *Connect a pulse rectifier between collector and emitter of the Q1 of the PC board. (2SC1548)*



D1: V-11N (8-719-901-19)
C6~6: 20000PF/1.6KV (1-130-660-11)

Connect the resistance shunt adjusted in 1 to both ends of the pulse rectifier.

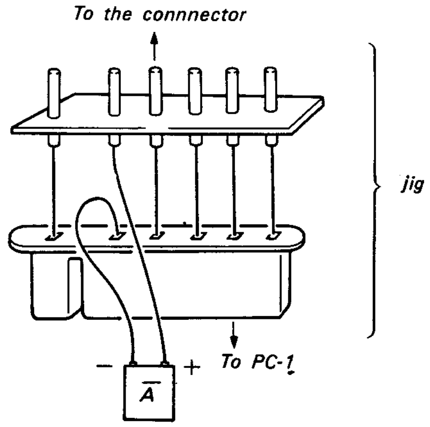
3. *Input a video monoscope signal (NTSC) and set the unit to highlight state.*
4. *Connect an appropriate resistor or variable resistor to both ends of R48 and R49.*
5. *Turn power ON and confirm that the digital voltmeter reading is 114.5V ±0.5V just before the high-voltage drop caused by HV HOLD-DOWN circuit operation.*
6. *Select R38, R39 and repeat step 4. as necessary.*
7. *After confirmation, turn power OFF.*
8. *Remove the resistor or variable resistor connected to both ends of R48 and R49.*
9. *Proceed to HV Reg. circuit adjustment.*

■ *HV REG. CIRCUIT ADJUSTMENT (R48 AND R49)*

1. *The same measuring system of 2-(1) and (2) is used, but beam must be cut off.*
2. *Turn power ON and confirm that the digital voltmeter reading is 101.5V ±0.5V.*
3. *Select R48, R49 and repeat step 2. as necessary.*
4. *After confirmation, remove the pulse rectifier and the voltage dividing network.*
   (Unit input: AC120V/60 Hz)*

■ *CONFIRMATION OF BEAM CURRENT PROTECTOR*

1. *Input a video monoscope signal (NTSC) and set the unit to highlight state.*
2. *Turn all RGB RASTER switches ON.*
3. *Connect a jig to the PC-1 of the PC board as shown in figure the right.*



4. *Turn power ON.*
5. *Short-circuit between collector and emitter of the Q12 of the PA board.*
6. *Turn G2, PIC and BRT, and confirm that PROT drops at an ammeter reading below 3500 uA.*
7. *If the above condition is not achieved, adjust R23.*
8. *Remove short-circuit connection of Q12 of the PA board, short-circuit Q11 and perform the same confirmation on it.*
9. *Turn power OFF and remove the jig.*

■ *OVERVOLTAGE PROTECTOR ADJUSTMENT*

1. *Confirm that power is OFF.*
2. *Connect a 470 k variable resistor between GND and the TP located in the GB board inside the switch power supply (TK-15).*
   Note: Set the variable resistor to maximam resistance.
3. *Input a video monoscope signal (NTSC) and set the unit to highlight mode.*
4. *Connect a digital voltmeter to the 115V line.*
5. *Connect an appropriate resistor or variable resistor to both ends of R88 and R89.*
6. *Turn power ON and gradually turn the variable resistor connected in 2 until the digital voltmeter reading becomes 124V ±1V.*
7. *Select R88, R89 and confirm that high voltage drops when the digital voltmeter reading is 124V ±1V.*
8. *Mount the values selected in 7. to R88 and R89.*
9. *Turn power OFF and remove the variable resistor and the digital voltmeter connected in 2.*

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SERVICE MANUAL

AEP Model

Chassis No. SCC-A65A-A

CORRECTION-2

Correct the service manual as shown below.
File this correction with the service manual.

☞ : **indicates corrected portion**

SECTION 9 ELECTRICAL PARTS LIST : Page 141

Incorrect	Correct
MISCELLANEOUS ************** ⚠1-237-582-11 RESISTOR ASSY, HIGH-VOLTAGE ⚠1-413-289-11 REGULATOR, SWITCHING (TK-15) ⚠1-451-243-12 DEFLECTION YOKE (SY-130A) ⚠1-452-261-32 CRT NECK ASSY (362) ⚠1-452-261-41 CRT NECK ASSY (362) ⚠1-452-302-11 CRT NECK ASSEMBLY ⚠1-453-108-11 DC BLOCK, HIGH-VOLTAGE SP901 1-503-255-00 SPEAKER ⚠1-509-547-11 3P INLET 1-518-590-11 LAMP, PILOT (WITH HOLDER) 1-559-088-11 CONNECTOR ASSY, ROUND TYPE 14P ⚠1-570-052-12 SWITCH, PUSH (AC POWER)(1 KEY) CNJ6 1-559-088-11 CONNECTOR ASSY, ROUND TYPE 14P FAN1 ⚠1-541-449-11 FAN, DC (WITH SENSOR) FAN2 ⚠1-541-449-11 FAN, DC (WITH SENSOR) FAN3 ⚠1-541-449-11 FAN, DC (WITH SENSOR) S901 ⚠1-570-052-12 SWITCH, PUSH (AC POWER)(1 KEY) S902 ⚠1-552-437-11 SWITCH, LEVER V901 ⚠8-733-021-05 CRT (SD-187 (R)) V901 ⚠8-733-022-05 CRT (SD-187 (G)) V901 ⚠8-733-023-01 CRT (SD-187 (B))	MISCELLANEOUS ************** ⚠1-237-582-11 RESISTOR ASSY, HIGH-VOLTAGE ⚠1-413-289-11 REGULATOR, SWITCHING (TK-15) ⚠1-451-243-12 DEFLECTION YOKE (SY-130A) ⚠1-452-261-32 CRT NECK ASSY (362) ⚠1-452-261-41 CRT NECK ASSY (362) ⚠1-452-302-11 CRT NECK ASSEMBLY ⚠1-453-108-11 DC BLOCK, HIGH-VOLTAGE SP901 1-503-255-00 SPEAKER ⚠1-509-547-11 3P INLET 1-518-590-11 LAMP, PILOT (WITH HOLDER) CNJ6 1-559-088-11 CONNECTOR ASSY, ROUND TYPE 14P FAN1 ⚠1-541-449-11 FAN, DC (WITH SENSOR) FAN2 ⚠1-541-449-11 FAN, DC (WITH SENSOR) FAN3 ⚠1-541-449-11 FAN, DC (WITH SENSOR) S901 ⚠1-570-052-12 SWITCH, PUSH (AC POWER)(1 KEY) S902 ⚠1-552-437-11 SWITCH, LEVER V901 ⚠8-733-021-05 CRT (SD-187 (G)) V901 ⚠8-733-022-05 CRT (SD-187 (B)) V901 ⚠8-733-023-05 CRT (SD-187 (R))

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VPH-1040QM

SONY®
SERVICE MANUAL

AEP Model
Chassis No. SCC-A65A-A
No. 1

SUPPLEMENT

SUBJECT: SCREEN SETTING MODIFICATION

File this supplement with the service manual.

1. INTRODUCTION

1. When setting screen, there are two methods. Rear Screen and Rear Ceiling. As to switch (S1 to S5) positions on the D board, follow the table below.

		S1	S2	S3	S4	S5	Main H defference	Main V defference
FRONT	Desk	↑	↑	↑	↑	↑	NOR	NOR
	Ceil	↓	↓	↓	↓	↓	REV	REV
REAR	Desk	↓	↓	↑	↑	↑	REV	NOR
	Ceil	↑	↑	↓	↓	↓	NOR	REV

S1 (HDC): Horizontal DC
S2 (H1): Horizontal SAW
S3 (VDC): Vertical DC
S4 (V1): Vertical SAW
S5 (V2): Vertical PARABORA

NOTE: In case useing a mirror in the Rear method, must take a different method.

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SERVICE MANUAL

AEP Model

Chassis No. SCC-A65A-A

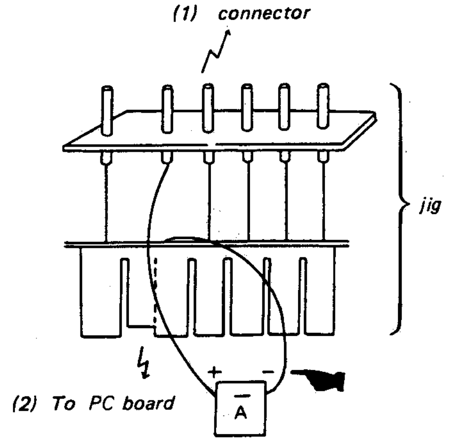
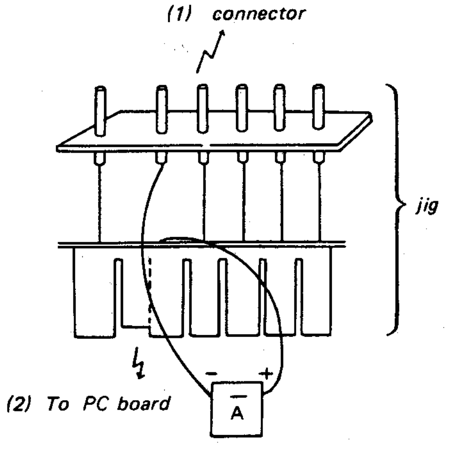
No. 1

CORRECTION

Correct the service manual as shown below.
File this correction with the service manual.

☛ : corrected portion and added portion

SECTION 5. SAFETY RELATED ADJUSTMENT: PAGE 39

Correct	**Incorrect**
R23 BEAM CURRENT PROTECTOR ADJUSTMENT *1. Confirm that the power switch is in OFF position.* *2. Disconnect RED anode-lead-wire from HV-DC Block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.* *3. Install the tool to the PC-1 connector on the PC board and connect an ammeter.* *4. Short-circuit between emitter to collector of Q12 on PA-board.* ☛ *5. Turn PICTURE, BRIGHT and R.G.B. G2 VRs (Focus Pack), and then confirm that protector circuit operates and raster disappears when ABL current is less than 3500 μA.* ☛ *6. Remove the short-circuit between emitter to collector of Q12 on PA-board and instead short-circuit between emitter to collector of Q11 and make the adjustment of 5.* ☛ *7. Remove the short-circuit between emitter to collector of Q11 on PA-board.* ☛  *Fig. 2*	*R23 BEAM CURRENT PROTECTOR ADJUSTMENT* *1. Confirm that the power switch is in OFF position.* *2. Disconnect RED anode-lead-wire from HV-DC Block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.* *3. Install the tool to the PC-1 connector on the PC board and connect an ammeter.* *4. Turn PICTURE, BRIGHT and R.G.B. G2 VRs (Focus Pack), and then confirm that protector circuit operates and raster disappears when ABL current is less than 3500 μA.*  *Fig. 2*

— Continued on next page —

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The section with the SAFETY RELATED ADJUSTMENT.

5-2. When not using a high-voltage meter (for H. Pulse measurement)

⊠ *HV HODD-DOWN CIRCUIT ADJUSTMENT (R38 AND R39)*

1. *Calibrate the detected voltage with a voltage dividing network as shown in Fig. 1.*
   Connect V1 to the 115V line of the unit and read voltage at this point with a digital voltmeter. Then, connect the voltmeter as shown in Fig. 1 and adjust the voltmeter reading to 1/10 of the V1 reading with the variable resistor (VR).

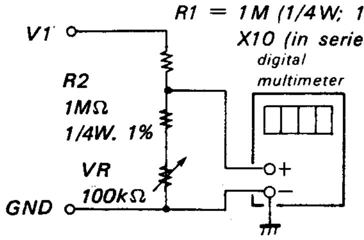
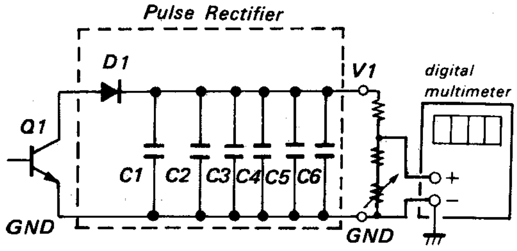


Fig. 1: Voltage dividing network

2. *Connect a pulse rectifier between collector and emitter of the Q1 of the PC board. (2SC1548)*



D1: V-11N (8-719-901-19)
C6~6: 20000PF/1.6KV (1-130-660-11)

Connect the resistance shunt adjusted in 1 to both ends of the pulse rectifier.

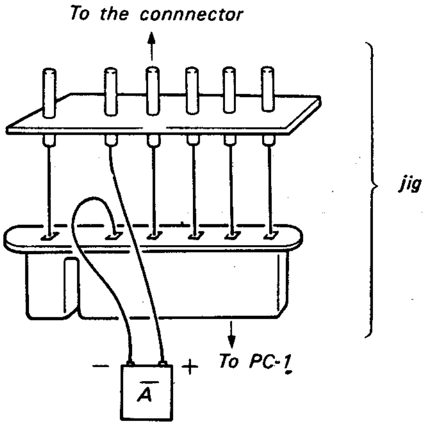
3. *Input a video monoscope signal (NTSC) and set the unit to highlight state.*
4. *Connect an appropriate resistor or variable resistor to both ends of R48 and R49.*
5. *Turn power ON and confirm that the digital voltmeter reading is 114.5V ±0.5V just before the high-voltage drop caused by HV HOLD-DOWN circuit operation.*
6. *Select R38, R39 and repeat step 4. as necessary.*
7. *After confirmation, turn power OFF.*
8. *Remove the resistor or variable resistor connected to both ends of R48 and R49.*
9. *Proceed to HV Reg. circuit adjustment.*

⊠ *HV REG. CIRCUIT ADJUSTMENT (R48 AND R49)*

1. *The same measuring system of 2-(1) and (2) is used, but beam must be cut off.*
2. *Turn power ON and confirm that the digital voltmeter reading is 101.5V ±0.5V.*
3. *Select R48, R49 and repeat step 2. as necessary.*
4. *After confirmation, remove the pulse rectifier and the voltage dividing network.*
   (Unit input: AC120V/60 Hz)*

⊠ *CONFIRMATION OF BEAM CURRENT PROTECTOR*

1. *Input a video monoscope signal (NTSC) and set the unit to highlight state.*
2. *Turn all RGB RASTER switches ON.*
3. *Connect a jig to the PC-1 of the PC board as shown in figure the right.*



4. *Turn power ON.*
5. *Short-circuit between collector and emitter of the Q12 of the PA board.*
6. *Turn G2, PIC and BRT, and confirm that PROT drops at an ammeter reading below 3500 uA.*
7. *If the above condition is not achieved, adjust R23.*
8. *Remove short-circuit connection of Q12 of the PA board, short-circuit Q11 and perform the same confirmation on it.*
9. *Turn power OFF and remove the jig.*

⊠ *OVERVOLTAGE PROTECTOR ADJUSTMENT*

1. *Confirm that power is OFF.*
2. *Connect a 470 k variable resistor between GND and the TP located in the GB board inside the switch power supply (TK-15).*
   Note: Set the variable resistor to maximam resistance.
3. *Input a video monoscope signal (NTSC) and set the unit to highlight mode.*
4. *Connect a digital voltmeter to the 115V line.*
5. *Connect an appropriate resistor or variable resistor to both ends of R88 and R89.*
6. *Turn power ON and gradually turn the variable resistor connected in 2 until the digital voltmeter reading becomes 124V ±1V.*
7. *Select R88, R89 and confirm that high voltage drops when the digital voltmeter reading is 124V ±1V.*
8. *Mount the values selected in 7. to R88 and R89.*
9. *Turn power OFF and remove the variable resistor and the digital voltmeter connected in 2.*

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SONY®

SERVICE MANUAL

AEP Model
Chassis No. SCC-A65A-A
No. 1

SUPPLEMENT

SUBJECT: SCREEN SETTING MODIFICATION

File this supplement with the service manual.

1. INTRODUCTION

1. When setting screen, there are two methods. Rear Screen and Rear Ceiling. As to switch (S1 to S5) positions on the D board, follow the table below.

		S1	S2	S3	S4	S5	Main H defference	Main V defference
FRONT	Desk	↑	↑	↑	↑	↑	NOR	NOR
	Ceil	↓	↓	↓	↓	↓	REV	REV
REAR	Desk	↓	↓	↑	↑	↑	REV	NOR
	Ceil	↑	↑	↓	↓	↓	NOR	REV

S1 (HDC):	Horizontal DC
S2 (H1):	Horizontal SAW
S3 (VDC):	Vertical DC
S4 (V1):	Vertical SAW
S5 (V2):	Vertical PARABORA

NOTE: In case useing a mirror in the Rear method, must take a different method.

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RESISTOR

Ref.No.	Part No.	Description				Remark
R671	⚠.1-247-807-31	CARBON	100	5%	1/6W	
R672	⚠.1-247-807-31	CARBON	100	5%	1/6W	
R673	⚠.1-247-831-31	CARBON	1.0K	5%	1/6W	
R674	⚠.1-247-713-51	CARBON	1.0K	5%	1/4W	F
R675	⚠.1-247-883-31	CARBON	150K	5%	1/6W	
R676	⚠.1-247-865-31	CARBON	27K	5%	1/6W	
R677	⚠.1-247-851-31	CARBON	6.8K	5%	1/6W	
R678	⚠.1-247-845-31	CARBON	3.9K	5%	1/6W	
R679	⚠.1-247-873-31	CARBON	56K	5%	1/6W	
R680	⚠.1-247-863-31	CARBON	22K	5%	1/6W	
R681	⚠.1-247-837-31	CARBON	1.8K	5%	1/6W	
R682	⚠.1-214-779-51	METAL	120K	1%	1/4W	
R683	⚠.1-214-747-51	METAL	5.6K	1%	1/4W	
※ R684	⚠.1-214-768-51	METAL	43K	1%	1/4W	
※ R684	⚠.1-214-769-51	METAL	47K	1%	1/4W	
※ R684	⚠.1-214-770-51	METAL	51K	1%	1/4W	
※ R684	⚠.1-214-771-51	METAL	56K	1%	1/4W	
※ R684	⚠.1-214-772-51	METAL	62K	1%	1/4W	
※ R684	⚠.1-214-773-51	METAL	68K	1%	1/4W	
※ R684	⚠.1-214-774-51	METAL	75K	1%	1/4W	
※ R684	⚠.1-214-775-51	METAL	82K	1%	1/4W	
※ R684	⚠.1-214-776-51	METAL	91K	1%	1/4W	
※ R684	⚠.1-214-777-51	METAL	100K	1%	1/4W	
※ R684	⚠.1-214-778-51	METAL	110K	1%	1/4W	
※ R684	⚠.1-214-779-51	METAL	120K	1%	1/4W	
※ R684	⚠.1-214-780-51	METAL	130K	1%	1/4W	
※ R684	⚠.1-214-781-51	METAL	150K	1%	1/4W	
※ R684	⚠.1-214-782-51	METAL	160K	1%	1/4W	
※ R684	⚠.1-214-783-51	METAL	180K	1%	1/4W	
※ R684	⚠.1-214-784-51	METAL	200K	1%	1/4W	
※ R684	⚠.1-214-785-51	METAL	220K	1%	1/4W	
※ R684	⚠.1-214-786-51	METAL	240K	1%	1/4W	
※ R684	⚠.1-214-787-51	METAL	270K	1%	1/4W	
※ R684	⚠.1-214-788-51	METAL	300K	1%	1/4W	
※ R684	⚠.1-214-952-51	METAL	330K	1%	1/4W	
※ R684	⚠.1-214-753-51	METAL	360K	1%	1/4W	
※ R684	⚠.1-214-954-51	METAL	390K	1%	1/4W	
※ R684	⚠.1-214-955-51	METAL	430K	1%	1/4W	
※ R684	⚠.1-214-956-51	METAL	470K	1%	1/4W	
※ R684	⚠.1-214-957-51	METAL	510K	1%	1/4W	
※ R684	⚠.1-214-958-51	METAL	560K	1%	1/4W	
※ R684	⚠.1-214-959-51	METAL	620K	1%	1/4W	
※ R684	⚠.1-214-960-51	METAL	680K	1%	1/4W	
※ R684	⚠.1-214-961-51	METAL	750K	1%	1/4W	
※ R684	⚠.1-214-962-51	METAL	820K	1%	1/4W	
※ R684	⚠.1-214-963-51	METAL	910K	1%	1/4W	
※ R684	⚠.1-214-964-51	METAL	1.0M	1%	1/4W	
R685	⚠.1-247-879-31	CARBON	100K	5%	1/6W	
R686	⚠.1-247-851-31	CARBON	6.8K	5%	1/6W	
R687	⚠.1-247-839-31	CARBON	2.2K	5%	1/6W	
R688	⚠.1-247-839-31	CARBON	2.2K	5%	1/6W	
R689	⚠.1-247-855-31	CARBON	10K	5%	1/6W	

Ref.No.	Part No.	Description				Remark
R690	⚠.1-214-781-51	METAL	150K	1%	1/4W	
R691	⚠.1-214-748-51	METAL	6.2K	1%	1/4W	

****

MISCELLANEOUS

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Ref.No.	Part No.	Description	Remark
	⚠.1-237-582-11	RESISTOR ASSY, HIGH-VOLTAGE	
	⚠.1-413-289-11	REGULATOR, SWITCHING (TK-15)	
	⚠.1-451-243-12	DEFLECTION YOKE (SY-130A)	
	⚠.1-452-261-32	CRT NECK ASSY (362)	
	⚠.1-452-261-41	CRT NECK ASSY (362)	
	⚠.1-452-302-11	CRT NECK ASSEMBLY	
	⚠.1-453-108-11	DC BLOCK, HIGH-VOLTAGE	
SP901	1-503-255-00	SPEAKER	
	⚠.1-509-547-11	3P INLET	
	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
CNJ6	1-559-088-11	CONNECTOR ASSY, ROUND TYPE 14P	
FAN1	⚠.1-541-449-11	FAN, DC (WITH SENSOR)	
FAN2	⚠.1-541-449-11	FAN, DC (WITH SENSOR)	
FAN3	⚠.1-541-449-11	FAN, DC (WITH SENSOR)	
S901	⚠.1-570-052-12	SWITCH, PUSH (AC POWER)(1 KEY)	
S902	⚠.1-552-437-11	SWITCH, LEVER	
V901	⚠.8-733-021-05	CRT (SD-187 (G))	
V901	⚠.8-733-022-05	CRT (SD-187 (B))	
V901	⚠.8-733-023-05	CRT (SD-187 (R))	

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ACCESSORIES AND PACKING MATERIALS

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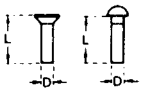
Part No.	Description
⚠.1-556-760-11	CORD, POWER (3 CORE)
*4-310-638-00	BAG, PROTECTION
4-378-674-01	CUSHION (UPPER) (ASSY)
4-378-681-01	CUSHION (LOWER) (ASSY)
*4-378-685-01	SPACER (200)
*4-378-686-01	SPACER (200), CRT
*4-383-076-01	SPACER
*4-383-077-01	INDIVIDUAL CARTON
*4-383-085-01	CUSHION (A)
4-482-360-11	MANUAL, INSTRUCTION
4-490-245-11	MANUAL, INSTRUCTION, DEALER

- ※ : Selected to yield optimum performance.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

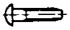
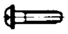
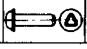
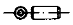
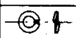
HARDWARE NOMENCLATURE

Screw: – P 3 x 10
L: Length in mm
D: Diameter in mm
Type of head
Indicated slotted-head only.
Unless otherwise indicated, it means
cross-recessed head (Phillips type).



Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Nut, Washer, Retaining ring:
N 3
Diameter of usable screw or shaft
Reference designation

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

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